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The Rise and Fall of Oral Hygiene in Bridgeport

By George Wood Clapp, D.D.S., New York, N. Y.

First Article

The glory that was Bridgeport's has departed. She will continue to turn raw materials into the useful implements of peace and in the unhappy event of war may again make arms and munitions. So will Buffalo and Detroit and a hundred other cities!

Bridgeport's one claim to unrivaled distinction from 1914 to 1924 lay in the fact that in her public schools there was conducted the most brilliant demonstration of community oral hygiene that the world has ever seen. The fame of it spread to the ends of the earth and from the uttermost parts thereof came wise and thoughtful men who saw and learned and were convinced and inspired and went home to dream and plan of doing for their own people the things that Bridgeport was doing for hers. Some of them were observers for governments, some were educators, some were physicians or dentists.

And this prestige, for which there were then no other contestants, has been thrown away in a political struggle which, in the beginning at least, had nothing whatever to do with oral hygiene. Perhaps Bridgeport might regain her leadership. This would require an awakening and a revolution from within and long and hard work. She still has great leaders available and great advantages, but other cities, like Allentown, Pa., and Atlanta, Ga., which have caught the fire from Bridgeport, are awake and coming strong, and unless Bridgeport acts promptly, vigorously and continuously, the opportunity will be gone forever.

On a wall near where this is written there hang two great poems, one entitled *In Flanders Fields.* The second of the two short stanzas reads as follows:

> Take up our quarrel with the foe!
> To you from falling hands we throw
> The torch. Be yours to hold it high!
> If ye break faith with us who die
> We shall not sleep though poppies grow
> In Flanders fields.

To this, in like spirit, after the death of Lieut.-Col. McCrae, R. W. Lilliard wrote *America's Answer,* the second stanza of which reads:

Fear not that ye have died for naught.
The torch ye threw to us we caught.
Ten million hands will hold it high,
And freedom's light shall never die!
We've learned the lesson that ye taught
In Flanders fields.

Bridgeport's prestige may be lost, but her contribution to community health will not be.

Alfred C. Fones, who is largely responsible for the prestige Bridgeport enjoyed, was born in Bridgeport, Conn., and lived there until he attended the New York College of Dentistry, from which he was graduated in 1890. He returned home immediately thereafter and became associated with his father in the practice of dentistry.

Alfred came naturally by his love of dentistry as a vocation and his high conception of its value as a means of public service. His father, Civilion Fones, D.D.S., had begun the practice of dentistry in Bridgeport in 1861, had got a view of what dentistry might be, had attended and been graduated from the Baltimore College of Dentistry in 1873, and had practiced dentistry in Bridgeport from that time. As will be told later, he had done much to cause the public to hold dentists in high esteem. He is said to have been of unusual professional skill, and certain it is that he numbered among his clientele many of the most desirable people of the city, and that they remained his patients "unto the third and the fourth generations."

The conditions he faced, which were not considered unusual when the writer began practice in 1900, are not so common now among our well-to-do people, and many of the younger dentists may be unfamiliar with them. Because this story will have much to do with changes in those conditions which have already occurred and with other changes which will be made even greater by the things to be written about here, it is worth while to sketch some of them in briefest outline.

The habit of visiting the dentist was rare and was usually exercised under compulsion. On the part of most people it consisted of having a tooth extracted when pain from it became too bad to be borne or of having it filled when the cavity got to be unpleasantly large. The more fastidious people made some effort to save the front teeth, but the bicuspids and molars do not often show very much and were habitually neglected. Prophylaxis was practically unknown to the dental profession and to the public.

The methods of practice were arduous in the extreme as compared with those of today. It was good practice then to save every root which

could be made firm enough, even when tied to other roots, to support a crown or one end of a bridge, so the more conscientious practitioners wore out their eyes and their backs reaming root canals and putting in treatments. They must have succeeded more often than they should according to modern pronouncements, because their patients lived many years after they ought to have been dead, if all we hear now is true, and many of them chewed their three meals a day with some efficiency and a good deal of comfort. These methods, however, gave rise to the famous "cotton exchanges" and afforded unlimited opportunity for trickery by unscrupulous practitioners. In one case within the writer's knowledge a dentist had "treated" a putrescent molar for ninety days, changing the cotton twice a week, without removing the cement with which he had previously filled the pulp chamber. Many dentists worked ten hours a day at the chair, and some of them regularly served from twenty to forty patients daily.

Crowns of gold or porcelain were mounted on the roots thus treated. Pulpitis was very common and had to be soothed. Huge fillings of amalgam were placed, occasionally in incisors and cuspids, and sometimes gold-foil fillings of almost equal size were hammered in, bit by bit, at a tremendous expense of vital force by both patients and operators. It is related that one of the most skillful gold-foil workers the profession ever produced not infrequently spent from four to six hours putting in a single filling.

The conditions on the prosthetic side of practice were even worse. The principles of impression-taking, bite-taking and articulation, as we now have them, were entirely unknown. The making of plates and even of bridgework was largely guesswork, and an appalling percentage of the guesses were not happy. It was not uncommon to keep on remaking a plate until the patient ceased to come back because of disgust or fatigue or death.

The results of such methods of practice were not such as to justify any high opinion of dentistry by the public or of dentists as servants of health. Very few dentists saw the mouth as a whole, and still fewer recognized that conditions in it probably influenced the health of the body. It was a rare occurrence for a patient to receive a thorough examination of the mouth and a report of what was necessary to the maintenance of its health. Many teeth were extracted. Cavities were filled, teeth were "cleaned," patients were persuaded to accept crown- and bridgework, much of which should never have been done and a good deal of which was lost soon after it was put in, and plates were made, with many of which the patient never looked natural and could not eat comfortably or efficiently.

Fees were very low. Nobody in those days had ever heard of the cost of practice and any reference to it would have been hooted out of

hearing. Extractions usually brought about 50 cents for the first tooth and 25 cents for each other tooth taken out at the same time. Fees for treatments ranged from nothing at all to $1.00 or $2.00, even though one might require from a week to a month of work. Amalgam fillings could be had from 25 cents up, sometimes as high as $2.00 for a very large one. For large gold-foil contour or approximal fillings $10.00 was a high fee. Plates cost from $5.00 to $15.00 in vulcanite, and perhaps $50.00 to $75.00 in gold. Collections were very uncertain, and one dentist in good professional standing, practicing in a city about the size of Bridgeport, died with $30,000 on his books, part of it 25 years past due. Few dentists were ever free from financial anxiety, practically none of them left estates for their families, and one dentist in every six known to be in practice was without sufficient money or credit to carry on his practice advantageously.

As a result of all these elements, dentists did not usually have conspicuously high standing in their communities. Occasionally, by force of personality or attainments in some other field, one was well known in the community, but this was very rarely because of professional achievement.

Upon a few rare minds in the profession there dawned the conviction that these were not the ways in which dentistry should be practiced, and that it would be immensely better for both dentist and patient if these unhealthy and unhappy conditions could be avoided by a course of treatment which kept mouths healthy.* Among these was D. D. Smith of Philadelphia. The source of Smith's inspiration is not known to the writer, but in 1894 he began the practice of preventive methods and of "controlled practice," by which is meant that he required patients to return at intervals of a few weeks for office treatment and to exercise daily oral care at home as they were instructed. He apparently retained only patients who would do these things. So far as the writer can learn, this was the beginning of controlled practice.

It is said that Dr. Smith was a man of very positive character, extremely outspoken, and that he ruled his patients with an iron hand. So extremely gratifying were his results that he largely or wholly gave up other methods of practice and read many papers before societies, urging the general adoption of this form of service and gave clinics before societies and in his office illustrating his methods. At some of the clinics in his office, to which influential men in the profession were invited, he presented patients and exhibited conditions of oral health which may have been unknown to the profession outside of that practice.

* For further information on this point see the article, *The Origin and History of the Dental Hygienist Movement, Journal of The American Dental Association,* December, 1926.

Stories which the writer has heard indicate that the patients were quite as enthusiastic for this form of service as Dr. Smith himself.

In the fall of 1899 Dr. Smith gave a paper and a clinic before the Northeastern Dental Association, which young Fones heard and saw, and by which he was tremendously impressed. He had been graduated at the New York College of Dentistry in 1890, had immediately joined his father, and had then been in practice long enough to get a vision of himself as facing an endless procession of suffering and deformed patients for whom only patchwork was possible, for whom there appeared to be no prevention, and for whom the methods then in use were certainly no cure. He secured an invitation to one of the clinics in Dr. Smith's office "to see him operate and inspect the beautiful mouths of many of his patients. There could be no doubt that it was the ideal service for dentistry." Here was a way out of a thousand troubles for patients and dentists.

Dr. Fones brought to the new vision the clear perceptions of a mind naturally executive in character. He saw immediately what may have been the greatest hindrance to the more rapid spread of the excellent doctrine Dr. Smith was preaching—that the work took so much of the dentist's time that in a busy practice it was impossible for him to do it justice without letting operative work suffer. As patients were already educated to operative work and it was the chief source of income, it was not likely to be sacrificed for the sake of new work for which neither dentists nor patients were ready. On the way home from that first visit to Philadelphia Fones brought this to the attention of Dr. William Jarvie and suggested that a woman might be trained to do prophylactic work and thereby leave the dentist free for operative work.

Dr. Fones spent five years in perfecting himself in the prophylactic technic taught by Dr. Smith and then trained Mrs. Irene Newman, who had been for some years his chair nurse. There was no school to which she could be sent, because nobody had then ever heard of a woman dental hygienist. So extracted teeth were mounted in modeling compound and liberally stained with a most indelible pencil, and she was taught to polish the stain away. Artificial tartar was made of plaster of Paris and varnish and smeared over the teeth, and she was required to remove it and polish the teeth. Dr. Fones had the courage of his convictions because he had her care for his mouth. At every step he gave careful personal attention and direction. After about a year of apprenticeship she was qualified to begin work on children, and in February 1906 she took her first patient. So far as is known, Mrs. Newman was the first dental hygienist. She rapidly acquired confidence and imparted it to the patients. In a short time she began work for adults.

The very strong impression which had been made on Dr. Fones by the clinic and the paper of Dr. Smith and the visit to Smith's office

was formed into conviction by the results of the introduction of prophylactic methods into his own practice, first with his own hands and then by Mrs. Newman. An attempt was made at the beginning of this article to sketch briefly some of the conditions common to the dental practices of this country at that time and, to a lesser degree, common now. In the years 1900-1906 young Fones saw these conditions changing in his own practice, while they remained unchanged in his father's practice and in the practices of many friends. Under the influence of the prophylactic treatments the health of the whole mouth improved, pyorrhea became less rampant, decay less frequent, there were steadily fewer and fewer large cavities and exposed pulps, there was less need for extraction and practically no physical exhaustion over root canals needing treatment and filling. Patients who received this service testified that they benefited in general health, especially in reduction of the number of "colds" they contracted. Here was salvation for the patient and release from drudgery for the dentist.

Finally, in 1908, young Fones made a momentous decision. It was that from that time on patients who continued in his practice should return at regular intervals, suited to the individual needs, for prophylactic treatment by Mrs. Newman, and that he himself would see them at intervals of six months. There were not lacking numerous prophesies by anxious and well-meaning dental friends of failure and ruin to follow such a course. But the plan was put into operation, was successful, and has been continued from that day to this.

Patients were required to return at intervals of four weeks as long as the condition of the mouth required, then at intervals of six weeks, and finally and forever thereafter at intervals of two months. Practical dietary suggestions were always made as to the liberal use of fruits, vegetables, milk and hard foods, and a reduction in the quantity of meat, refined cereals and flours, and sugar.

The dire predictions of friends would undoubtedly have been realized if such a plan had been launched, full-fledged, upon an unprepared clientele by an unknown or untrained or overenthusiastic dentist. But there had been long preparation. Since 1900 Fones had been practicing prophylaxis upon an increasing number of patients, and since 1906 Mrs. Newman had been exclusively occupied in that work for children and adults. Thousands of opportunities to educate patients had been improved. Many patients were in better dental and general health because of the service. The entire setting was psychologically ready. Within a short time everybody was enthusiastic about the service, and demands for it came from many who desired to be patients. It became customary for patients to refer friends suffering a physical depression to Dr. Fones, especially if the cause of the depression was obscure.

This article may well close with three morals. The least of these

has to do with the cost of this service to patients. Dr. Fones has repeatedly taken the professional and the financial history of individual patients who have been in the practice for long periods and compared the cost of dental service under the old plan of uncontrolled attendance with the cost to the same persons of controlled returns at intervals such as have been described. Over two periods of five years each, the first "uncontrolled" and the second "controlled," it has cost patients 40% as much to have the mouths kept healthy as it did to keep them unhealthy. In other words, patients have saved their health, their teeth, their comfort and 60% of their money.

The second and by far the most important of these morals is that dental control benefits patients in dental and oral health. In Dr. Fones's practice flabby gums with the dull red color of congestion gave way to firm, dense gums of pink color. Susceptibility to decay was greatly reduced, and it was a common occurrence to have patients who had formerly been almost continually in need of fillings remark that they had not had a cavity for five years. Deep cavities and dead pulps ceased to be factors in the practice.

The third moral is that, under the proper conditions of dentist and organization and education, the controlled dental practice offers the opportunity to render to patients the form of service that many of us have dreamed of but hardly ever expected to see, namely: protective service, free from pain and deformity, at moderate cost and without drudgery. It is not for this article nor for the writer to say just what can be done in other practices, but the principle of controlled practice is so pregnant with beneficial possibilities to all concerned that it is worthy of the most thoughtful attention from every practitioner.

Dr. Fones was to go much further than that, but that is, as Kipling says, "another story."

(The Second Article will relate how Dr. Fones conceived the plan of extending to the children of Bridgeport the prophylactic service which was so successful in his practice, some of the methods he employed in securing community funds to establish a preventive dental clinic, some of the difficulties he encountered, and how he finally got the money.)

Reminiscences—Mostly Anesthetic

By William Harper DeFord, D.D.S., M.D., Des Moines, Iowa

FIRST ARTICLE

When I was a young man, there were only three vocations worth considering—theology, law, and medicine. I chose theology and, after having passed successfully through all the public school grades in Washington, D. C., I was sent to a college in Western Maryland for a five years' course, expecting to become a preacher. During my sophomore year I contracted a severe case of diphtheria, which affected my speech to such an extent that public speaking seemed an impossibility, and it became necessary for me to enter some other profession or line of endeavor upon the completion of my college course.

J. B. Ten Eycke, M.D., a dentist of Washington, D. C., and my father were very intimate friends, and Dr. Ten Eycke suggested to my father that dentistry had a great future, that a dental career was worth considering, and that if such a course appealed to me, he would make a place for me in his office. It so happened that Dr. Ferdinand J. S. Gorgas of Baltimore, Maryland, was Dean of the Baltimore College of Dental Surgery, "the oldest dental school in the world." Dr. Gorgas and my father had been classmates at Dickinson College, Carlisle, Pa. My father called on Dr. Gorgas and, in an interview with him relative to me, was deeply impressed with the possibilities in the dental profession. Dr. Gorgas had climbed to the very top of the dental ladder, was the author of a number of textbooks on dental subjects, and had become a leader in his chosen profession. I completed my college course and was graduated with an A. B. degree in June, at Westminster, Md.; I reported to Dr. Ten Eycke the very next day and became a student of dentistry. This happened about fifty years ago.

Dr. Ten Eycke was very much interested in nitrous oxid as an anesthetic agent useful in the extraction of teeth. I can recall only one other man in Washington at that time who was using nitrous oxid. Its use was very little understood, and but few dentists throughout the country were advocating or employing it.

Dr. Ten Eycke reserved the hours from 11.30 A. M. to 1.30 P. M. each day for extracting teeth under nitrous oxid anesthesia, and a dozen of the leading dental practitioners in Washington referred all their extraction cases to him, so that these two hours always were very busy ones.

There was very little that I could do to assist the doctor in any other department of his work, but he certainly kept me busy from the very first day in his extracting room. The apparatus used in those days was crude compared to the accurate, scientific appliances now in

use. Nitrous oxid gas was brought to the office in cylinders containing 250 or 500 gallons, much the same as today. The gas was piped into a large nickel-plated gasometer similar in shape, appearance and construction to the gasometers you see in any town or city where gas is manufactured for illuminating and heating purposes.

The inhaler consisted of a rubber hood and, when in position, covered both the nose and the mouth. The rubber tubing conducting the nitrous oxid from the gasometer to the hood terminated in a hard rubber attachment, which entered the mouth and acted as a mouth prop, and in addition a good-sized cork was held between the teeth, with a string attached, which string was a valuable adjunct at times when the cork dropped down the patient's throat. Mouth-breathing was relied upon almost universally. The chair used was constructed of wood, upholstered with carpeting, with four legs and no casters, such as was formerly found in barber shops. The foot-rest was detached from the chair. A very strong chair was necessary, because nitrous oxid without the admixture of oxygen caused struggling, and even pugnacious tendencies. The Morrison chair at that time was the best operating dental chair, but the Morrison chair would be wrecked frequently, the foot-rest kicked off, or the iron back broken.

A colored maid was always in attendance, there being no professional nurses nor even dental assistants at that time. An important acquisition to the office equipment was a French music box. At a nod of the head the maid would turn on the music, the doctor saying to the patient, "You will hear some very beautiful music while asleep," and frequently the patient would say upon awaking, "I did hear the music!"

My first duty was to feed the gasometer and keep it filled to a proper level all during the inhalation period of anesthesia induction. I recall that we had two bricks handy, not to throw at patients when they became unruly or belligerent—which they usually did—but for shallow breathers and for those who would not breathe properly, one and sometimes two bricks being placed on top of the gasometer to give added weight and force the inhalation of gas.

It was not very long before I took almost entire charge of the extracting room, except administering the nitrous oxid and doing the extracting. I seated the patient in the chair, seeing that the clothing was properly loosened, selected the instruments to be used, arranged them in the order of their use on the bracket table, fed the gasometer, held the patient in the chair during the stage of excitement, sponged the mouth, took care of the patient after awakening, etc., all of which knowledge proved valuable in later years.

I have never seen the equal of Dr. Ten Eycke as an extractor of teeth under nitrous oxid anesthesia. You had to be a lightning operator to get results. The anesthesia could not be prolonged, and rare judg-

ment had to be used as to how deep to get the patient for each particular case. A slow operator was never a success. The condition of most patients where several teeth were to be removed was really that of anesthesia plus a degree of asphyxiation. In multiple extractions the patient's face would be "as black as a hat," yet in the thousands of cases I saw in this office and during the next few years in college and private practice I never witnessed a death nor saw a patient who had any dangerous after-effects. This was the kind of anesthetic instruction I had on six days in the week for five months when I matriculated at the Baltimore College of Dental Surgery.

There were a number of interesting dental practitioners in Washington at that time, among them Dr. Maynard, who invented the Maynard gun used so successfully in the Civil War, and it was said that he was the first man to remove a dental pulp and fill the root canals of a tooth.

All of the older dentists are familiar with the Donaldson nerve broach and extractor. Dr. Donaldson for many years made the only nerve broach manufactured, and there has never been a better one. These broaches were made and tempered by Dr. Donaldson in his own laboratory.

Then Dr. Findlay Hunt invented a celluloid apparatus at the time when dentists were compelled to pay a royalty of from $25 to $500 or $600 per year, depending upon the amount of plate work done, just for the privilege of using vulcanizable rubber, and that did not include the price of the rubber. Prior to this period, dentures were made of gold, and only people financially well-to-do could afford them. So rubber was welcomed as a baseplate material, but the fact that it was controlled by patents, and that a heavy royalty was imposed on users, made a commotion in dental circles comparable with the tax on tea in earlier days in Boston. Dr. Hunt's celluloid apparatus was hailed with joy, as celluloid made a very beautiful base for dentures and was a fairly good substitute for rubber until the rubber patents expired, when everybody could use it, royalty free.

One day Dr. Ten Eycke sent me on an errand to the office of Dr. Wolfe, another dentist, who told me of the following instance. He was busy operating at the chair one day when a long, lean, lank specimen of humanity entered his office for tooth extraction. He was placed in a chair in an adjoining room, and upon examination it was ascertained that this patient had an acute alveolar abscess from which he was suffering "the torments of the damned." Dr. Wolfe selected some forceps and was about to extract the tooth when the patient said, "Just a moment, Doctor." From his pocket he drew a small bottle, removed the cork, and took several inhalations, and then said, "Now you may proceed." This man was Abraham Lincoln, then President of the

United States. The bottle contained chloroform. The tooth was removed painlessly. This incident impressed me deeply. I am still wondering where Lincoln obtained his information. The anesthetic property of chloroform had only recently been discovered by Sir James Y. Simpson of London. I had some such feeling come over me from hearing this incident as I imagine was experienced by Sir Isaac Newton when the apple hit him on the head and, from that occurrence, he worked out the law of gravitation. It did seem to me that some better method than nitrous oxid, with the clumsy apparatus that had to be employed, should be discovered for tooth extraction. Then and there I decided that I would make a study of anesthesia and anesthetics, and no other department of dentistry has interested me so much.

15 Rawson Block.

(To be continued)

[PREPARATION FOR BIGGER THINGS]

As we see it today, preventive dentistry is probably much more of a medical than a dental problem, and our belief or our attitude toward this will not alter the facts of the case one particle. It will be exactly what it is going to be, and if there is to be a change, the change should be with us. We should prepare ourselves to meet this issue and do more for the coming generation of dentists, preparing them better to handle the situation and to be more ready to meet the situation when it develops.

—CROSS.

The Gilchrist Company Dental Clinic

By Russell N. Hopkins, D.M.D., Boston, Mass.

In April, 1923, The Gilchrist Company of Boston, a large department store, started a dental clinic. The idea was presented to them by the Harvard Mercantile Health Board under the direction of A. B. Emmons, M.D. This board is under the control of the Harvard Medical School.

The clinic, which serves nearly 2,000 employees, is unique in that it has been self-supporting from the start. The store itself provided only the space and the initial equipment and gave permission for the employees to be excused during business hours. The cost of maintenance is carried by the members of the Gilchrist Association, which is composed of employees back of the counters. In other stores the company officials run the clinics and the firm makes up the deficit, but as far as I know, this is the only industrial clinic in Boston or in the East that is controlled by the employees and supported entirely by them.

Every kind of dental work is done except crowns, bridges and dentures. Arrangement has been made whereby patients in need of these restorations may obtain them at the clinic of the Harvard Dental School at a minimum cost. During the past four years about 5,000 patients have been treated and the saving to the store from the loss of time out for dental trouble has been very great.

It is my belief that this type of clinical work is of great value to the dentist, for he sees such a wide variety of mouth conditions that he cannot fail to profit by them. His speed of working is markedly improved and his knowledge is constantly increased. Furthermore a technic is gained from handling thousands of patients that most certainly must be shown in the young dentist's ability.

While similar clinical positions are looked upon as a rule as stopgaps and fillers-in, it would seem that the field is broad enough to make industrial dentistry a life work, provided, of course, that the company or corporation desires to go into it properly from the financial aspect.

In the case of The Gilchrist Company, the attitude of the management has been most helpful and the employees are proud and glad to send other patients to the clinic. No great amount of preliminary or preparatory work was necessary to get the employees to come. A few articles and notices were published in the store's monthly paper, and good work and a kind consideration of the patient's feelings did the rest. The employees realize that they need to have the work done, but lack of time and money have kept them away from dentistry.

Nearly 50% of the employees are in need of crowns, bridges, or partial or full dentures to restore efficient masticating surfaces. Clean

mouths, free from stains and tartar and with no disease of the gingivae, are rare. The proper size of the toothbrush and the correct method of brushing seem to be very little understood by the class of people patronizing this clinic. About 10% of the operations are extractions, while of the fillings 75% are amalgam restorations.

The clinic is open for only three hours daily and the cost comes to $3.75 an hour, divided between $3.33 for the operator and 42c. for material. As patients are generally seen by half-hour appointments, the unit charge is $1.88. The charge for the same time in one of the other stores is 50c. This makes it rather difficult, for the labor turnover in these stores is great and patients who have been paying only 50c. elsewhere do not cheerfully consent to pay over twice that amount at the Gilchrist clinic.

If the operation cannot be completed in the half-hour appointment, a temporary filling is inserted and the work is completed at the next appointment. No operation is hurried because of lack of time. It is important that the most thorough work be done because the employees are very critical and will make no allowance for fillings that fail. Their salaries are small and they are entitled to the best that can be given them.

A certain amount of objection has been raised by dentists, who claim that the clinics deprive them of a certain amount of business. This is not so, because this class of patients could not afford to go to a private office and, if not taken care of in the store, would simply let the work go.

483 Beacon Street.

[AN IDEAL OF SERVICE]

Efforts by the dental practitioner to discover promptly the incidence of oral maladies and to prevent their extension in his patients individually, exemplifies an ideal of health service—to keep people well—which has not yet appealed strongly to the average practitioner of medicine, who, manifesting little concern about prevention of illness among his private patients, seldom gives them personal advisory health service when they are not sick.

—GIES.

Preventive Dentistry from the Viewpoint of the Radiodontist*

By Howard R. Raper, D.D.S., Albuquerque, N. M.

A SUMMARY

Toothache is preventable. Ninety per cent of people can escape it. Caries is not preventable in the same sense or in the same degree. Not 10% of all people can escape caries.

Practitioners of dentistry seem to be divided into two groups—dietitians and cleaners of teeth. The best the average dentist can do is to see to it that a patient gets a mixed diet and keeps the mouth clean. That will prevent some decay, but for the average person it will not prevent all decay. There is no method of cleaning that will prevent all decay in a large percentage of cases.

According to the dietitian a person who wishes good teeth must regulate the diet of his mother and grandmother before he is born, and we all know that no method yet devised of cleaning the teeth will prevent caries. But toothache can be prevented.

A man does not die in one piece from disease. Disease is the destruction of tissue, and when enough tissue has been destroyed, then the man dies. There is a wasting away in most of the fatal diseases, called by the physicians *cachexia,* which is a manifestation of this destructive process.

Caries is a disease, and consequently is a *beginning* of death. It should be stopped as soon as possible. It starts by eating a hole in the crown of the tooth and reaches the pulp, causing inflammation, death and disintegration of that organ. Thence it proceeds to the bone, from which it may spread to any part of the body by metastasis and ultimately cause the disease of vital organs of the body or even death of the whole organism.

Pulpitis is accompanied by sharp pain and is the first real sign that the disease has reached the circulation. To prevent this, cavities must be filled and kept filled. To quote a well-known slogan, "If you save the surface, you save all."

One important reason for the present number of pulpless teeth is because dentists do not find the proximal cavities until they are so large that they cannot possibly be overlooked. Radiographers have known this for a long time, for they see them in radiograms taken for other purposes, but radiograms have not been used extensively for examinations for caries in the past.

* This is a summary by the editor of a paper read before the First District Dental Society, New York, February 7, 1927.

There are two reasons for this:

1. The average dentist is not aware that cavities are overlooked. Tests have proved that he cannot find them by the ordinary ocular and instrumental methods.
2. Until recently it required from ten to fourteen exposures to radiograph all the teeth. This was a long and expensive procedure.

At the present time an interproximal examination may be made with seven or even five exposures. The upper and lower teeth are taken on one film. This of course shows only the crowns, but if the pulps of the teeth are kept alive, there is no need of examining the ends of the root. This examination should be periodic and its cost will be less than the treatment of one pulpless tooth.

There is a great deal of discussion about the prevention of caries and a great deal of discussion concerning the management of pulpless teeth. Caries is not being prevented and pulpless teeth are being retained or extracted according to the belief of the dentist and the wishes of the patient. For, after all, if a patient will not sacrifice a tooth and wishes it treated, the dentist generally complies. Toothache means the loss of the tooth or the retention of a member potentially dangerous to the organism as a whole.

By means of periodic radiographic examinations cavities may be detected and filled at an early stage and all danger to the pulp may be avoided.

[AN IMPORTANT FACTOR]

There is one thing that should be constantly emphasized in dental education: The practice of dentistry requires two attributes: a scientifically trained mind and manual dexterity.

—LOGAN.

Diagnosis and Symptomatology of Pyorrhea Alveolaris*

By Hermann Prinz, A.M., D.D.S., M.D., School of Dentistry, University of Pennsylvania, Philadelphia, Pa.

A SUMMARY

The essayist stated that he would only attempt to present the clinical picture of this disease, since its etiology was too much in doubt. There are two types of pyorrhea, the marginal and the vertical or true type. The first can be successfully treated, the second offers great difficulties. If the process is more or less completely absorbed, extraction is the only thing left to be done.

Middle life is the period of greatest susceptibility, though cases have been reported in the young. However, from twenty to fifty years of age may be put down as the general limits. It seems to be equally distributed between both sexes.

Marginal pyorrhea spreads from one tooth to another with a chronic inflammation. This condition is aggravated by an unclean condition of the mouth and by lack of use. The accumulation of tartar is responsible to a great extent, and the pocket formation is superficial, shallow and not restricted. Chronic suppurative gingivitis is always present, and generally there is destruction of the alveolar circular ligament.

This ligament forms the free margin of the gum and is a condensation of fibers and not a true ligament. It does not hold the tooth in position, and the natural depth of this trough is only a millimeter or two. When this ligament is destroyed by inflammation it is replaced, and this process gives the clinical picture of recession of the gums.

The vertical or true type of pyorrhea is restricted to isolated teeth, and pocket formation must be present. There is atrophy of the alveolar process, which, in the maxilla, is more pronounced in the labial plate, but in the mandible there is no such differentiation.

The earliest symptoms are hyperemia and an atrophy of the interdental papilla. This is in contrast to the first type, in which the gum is swollen. Pain is rarely experienced and marginal gingivitis is usually absent. The lack of pain is due to the fact that in most all cases the pulps of the teeth are atrophic. One of the early signs is the separation of the upper incisors. The single-rooted teeth are the ones that most easily deviate in position.

The pocket, however, is the characteristic sign. Any pocket of

* Given before the Section on Preventive Dentistry, First District Dental Society, New York, November 16, 1927.

more than two millimeters in depth should be looked upon with suspicion, and a number of gauges have been devised for making this measurement. The pocket becomes filled with granulation tissue, which becomes infected.

When percussion is applied to a tooth affected with true pyorrhea, it has a dull, characteristic sound. Subgingival calculus is not the cause but the result of the pocket. There may be abscesses and fistulas that are in no way connected with the death of a pulp. Teeth affected with pyorrhea are generally immune to caries in inverse ratio to the severity of the disease.

Early diagnosis is difficult because subjective symptoms are generally absent, but migration and motility of the incisors are primary. The history of the patient should be taken, especially in regard to diseases due to faulty metabolism, and the diet should be examined. A pain in the jaws upon awakening in the morning and which passes off after a few hours is significant.

In an examination of the mouth, hyperemia, recession of the gingiva, pockets, and salivary calculus should be looked for. Percussion should be used and the motility of the teeth noted. The mandibular lymph nodes should be examined for any enlargement. The X-ray is an aid to diagnosis but should not receive too much importance. A bacteriological test of the blood, urine and saliva is valuable.

When all this has been done, then a differential diagnosis must be made, excluding other diseases that may produce similar symptoms, before a diagnosis of true pyorrhea can be given.

Special Teeth for Cross-Bite Cases

By Alfred Gysi, D.D.S., Zurich, Switzerland
Professor of Prosthetic Dentistry, University of Zurich
(Literary Collaboration by George Wood Clapp, D.D.S.)

SEVENTH ARTICLE

THE FUNCTIONS OF THE OCCLUSAL FACETS

The functions of the occlusal facets, which were formed after the manner described in the Sixth Article, may be divided into four groups corresponding to the movements of the mandible which have been mentioned—opening, lateral, protrusive, retrusive.

In the return from the straight opening movement to central occlusion the facets act merely to squeeze food, just as a soft sponge is squeezed in the hand. This is the most frequent and most efficient movement in the mastication of non-fibrous food. This movement may be performed with reasonable satisfaction by artificial dentures which have not been articulated for lateral movements. Such dentures probably constitute the great majority of all dentures made and, in consequence, most denture patients find themselves limited to the straight opening and closing movement.

In cases where resorption has produced an interalveolar-crestline angle of less than 80°, such mastication as is possible with a straight opening and closing movement cannot be successfully and comfortably performed if the maxillary teeth are set even a little outside the ridge. Food which does not immediately liquefy under the action of the saliva becomes more solid under pressure, as the mandible approaches the maxilla, and even a moderate degree of resistance by food will dislodge a maxillary denture in which the posterior teeth are placed outside the ridge, unless it should chance that there be an equal quantity of equally resistant food on opposite sides of the mouth at the same time, a thing most unlikely to occur. If there is food on both sides and that on one side is a little more resistant than that on the other side, the more resistant food will dislodge the denture.

Extensive experience in finding and removing the causes of dissatisfaction with artificial dentures already made has led me to formulate what I believe to be the most important law of denture construction, that is, that *the long axes of the artificial posteriors must be placed in the interalveolar crest line of the case for which the denture is constructed.* This law is binding, regardless of the kind of artificial teeth that may be used. It is quite as important in the construction of any form of bridgework.

The Fiber-Cutting Functions

However possible it may be for patients to live on the kinds of food which can be efficiently masticated by the squeezing movement alone, this is not desirable, because intestinal health requires the presence in the food of a considerable proportion of fibrous material, commonly spoken of as *roughage*. Many of the fibrous foods, meats, cabbage, lettuce, are regarded as essential to health. Few persons nowadays masticate with sufficient deliberation to cut all the fibers of any of these foods, even when the natural dentition is good, but it is important that a considerable proportion of these fibers should be cut into short pieces. Fibrous foods can be cut only by the exact interaction of the edges of opposing facets during lateral, protrusive and intermediate movements. This cutting function of the edges must be followed by a rubbing together of the surfaces of the facets during the return of the mandible from lateral excursion. This rubbing action is essential to the mastication of certain foods which do not readily become fluid under the action of the saliva, and which are not fibrous in character. Christiansen showed by a series of experiments that nut meats, which have no fibers, cannot be successfully masticated by the squeezing action of the teeth or by any teeth which are not articulated with sufficient care to permit exact interaction of the cusps.

This exact interaction of the cusps which has just been mentioned as essential to the cutting and rolling functions can be obtained, in cases where the interalveolar-crest-line angle is less than 80°, by putting normal-bite teeth in the interalveolar crest line, but a mandibular denture made in this way is foredoomed to failure because the tongue will be so crowded that it will unavoidably lift or shift the lower denture in the exercise of its function of holding food between the teeth.

A Change in the Application of a Principle

Dentists who desire to establish even reasonably efficient mastication with artificial dentures, in cases where the interalveolar-crest-line angle is less than 80°, must change some of their conceptions of the forms of the occlusal surfaces of the teeth and their functions. Normal-bite maxillary bicuspids and molars present two rows of cusps with a longitudinal groove between them. When the mandible moves into working occlusion, these cusps and this groove, interacting with similar cusps and a similar groove on the mandibular teeth, form a rectangular space in which food is confined and compressed. This is illustrated in the working bite in Fig. 53. Soft portions of the food are squeezed out from between the teeth, and fibrous portions are cut and smashed as the mandible returns to central occlusion. Repetitions of this compres-

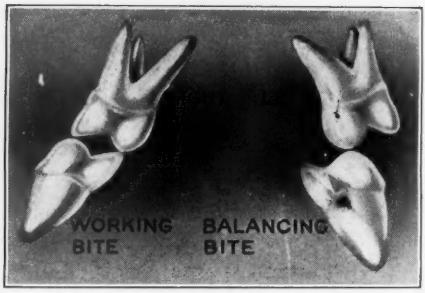

Fig. 53
Food-retention space on working side of normal-bite teeth.

sion, cutting and smashing, with the attendant insalivation, constitute mastication.

Cross-bite maxillary teeth present only one row of cusps, and there is no longitudinal groove. The mandibular cross-bite teeth present two rows of cusps quite different in form from those in normal-bite teeth. There is a sort of longitudinal groove, but it is less continuous than in normal-bite teeth.

These forms make it impossible for cross-bite teeth to confine food for crushing as it may be confined in the rectangular groove between normal-bite teeth in working bite, as shown in Fig. 53. They act much more like the mortar and pestle illustrated in Fig. 54, in which there is no confining mechanism but an easy escape for all portions of food as

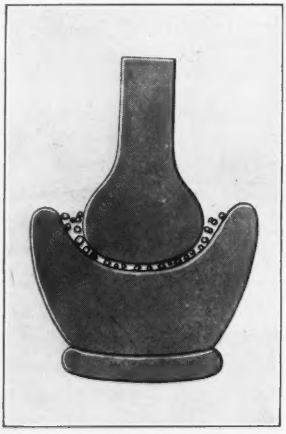

Fig. 54
Mortar-and-pestle action.

they become sufficiently liquefied to flow out, and in which the portions too fibrous in character to escape in this way are held between the crushing surfaces.

Changes in Form

The occlusal surfaces of cross-bite maxillary bicuspids and molars are in the form of a three-sided pyramid. Each side of the pyramid presents a facet which is essential to the performance of at least one

Fig. 55

Three-sided positive pyramids as the basic form of the maxillary teeth, and the negative on the mandibular teeth. *p*—protrusive facets. *r*—retrusive facets. *b*—balancing facets. The two arrows show the direction of the light which illuminates the two plaster models.

function of mastication. In the course of the different movements of the mandible each facet discharges more than one function. As it is desirable for purposes of study to be able to identify each facet and refer to it, to each has been given a name derived from its most important function. Fig. 55 is an illustration of the three-sided pyramids on the maxillary teeth and the three-sided fossae on the mandibular teeth.

The name *protrusive facets* has been given to the facets (*p*) which are in contact during straight protrusive movements of the mandible. These facets are important in other movements, as will be mentioned, in which their interaction cannot be so easily seen.

To the facets engaged principally in the retrusive movement has been given the name *retrusive facets* (*r*).

Because the third group of facets, which face buccally in the maxillary teeth and lingually in the mandibular teeth, is engaged principally in what has come to be known as a *balancing bite,* they are called *balancing facets* (*b*).

When the mandible moves downward to admit food between the teeth and then comes up in working bite, the relations of maxillary and mandibular cross-bite teeth will at first appear very strange to the dentist who

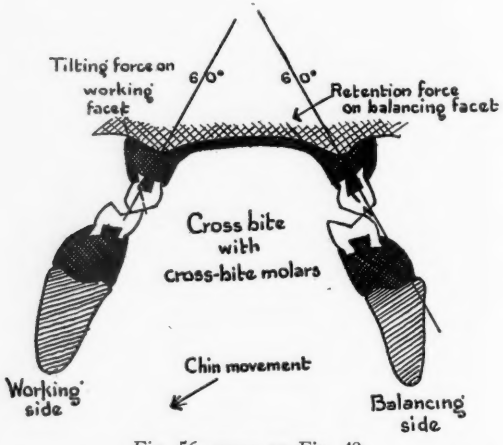

Fig. 56—same as Fig. 48

The relations of cross-bite teeth in the balancing and working bites are quite unlike those of normal-bite teeth, as described in the text.

is accustomed to those relations only in normal-bite teeth. The buccal cusps of the maxillary teeth on the working side will be so far to lingual of the buccal cusps of the mandibular teeth that the maxillary cusps will be in contact only with the lingual portions of the lingual cusps of the mandibular teeth (Fig. 56—same as Fig. 48).

The balancing side, as seen from the buccal, will appear much as the balancing bite has appeared in normal-bite teeth, because the balancing facets of the maxillary molars will be in contact with the balancing facets of the mandibular molars. An additional factor in the balance of the dentures, which is very important and which cannot be readily

seen from the buccal side, is that during practically all the intermediate movements, which outnumber all others, the protrusive facets are continuously in contact.

The so-called lateral movements of the mandible are more or less protrusive, as regards the sagittal plane; that is, they do not cross the sagittal plane at right angles but incline somewhat forward as they move away from that plane. The amount of forward inclination differs greatly in different positions of the mandible according to the forms of the Gothic arch described in the incisor region, as shown in Fig. 57, and also according to the degree of an intermediary movement. This makes it possible for the protrusive and retrusive facets on the working side of cross-bite teeth to remain continuously in contact during the return of the mandible from its lateral excursion. Between these facets thus held in contact fibrous portions of the food are caught, held and cut.

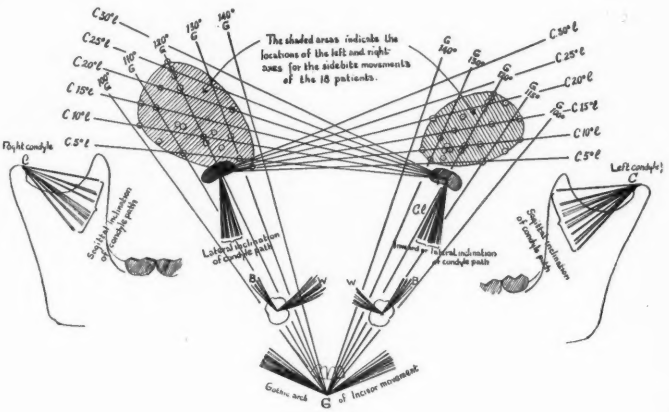
The shaded areas indicate the locations of the left and right axes for the sidebite movements of the 18 patients.
Right condyle
Left condyle
Sagittal inclination of condyle path
Lateral inclination of condyle path
Guidance of incisor movement

Fig. 57

The shaded areas behind the condyles contain the locations of the rotation axis, at this plane, for each of eighteen patients from a dental clinic at the University of Zurich. The lines drawn forward from the condyles and outward and backward from the molars and incisor points indicate the movements at these locations from these axes.

Between the balancing facets of the maxillary and mandibular teeth on the working side, at the beginning of the return from the lateral excursion of the mandible, there is a rather deep ditch, in which food is held partly by the facets and partly by the cheek, and here it is squeezed.

The Final Comminution of Food

There is a final comminution of food, in preparation for swallowing, which has been generally overlooked. Food which has been partially

crushed and insalivated on the working side of the mouth, where the greatest force is exercised and the principal work of mastication is accomplished, is thereafter automatically transferred to the balancing side, forced between the teeth by the tongue and cheeks and further comminuted and more thoroughly insalivated as the mandible returns to central occlusion. This transference is automatic rather than conscious.

Dietitians are pretty well agreed that when food is perfectly masticated, the act of deglutition is automatic and unconscious. This may not be possible until food has been so thoroughly masticated as to render it fluid, and the habit of swallowing chunks of partly masticated food requires a conscious effort or the establishment of a habit.

During mastication fresh supplies of food, in relatively large portions, come repeatedly between the teeth on the working side and are there cut, partly crushed and partly insalivated. Deglutition will not act automatically on food in the condition in which it is automatically discharged from the working side of the mouth. Between the balancing facets, on the balancing side, this partly masticated food is subjected to a much longer rubbing and crushing movement than on the masticating side. Here it is comminuted and insalivated to a condition which prepares it for automatic deglutition.

(*To be continued*)

[EARLY KNOWLEDGE VALUABLE]

If people knew as much as they should know about cancer, they would seek proper advice on the first appearance of the danger signals. Knowledge of the early symptoms of cancer is life saving when this knowledge leads to immediate medical consultation, coupled with prompt and efficient action whenever indicated.

—FAUGHT.

Oral Surgery In Practice

By James L. Zemsky, D.D.S., New York, N. Y.

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(*Continued from December*)

TRISMUS

(False Ankylosis)

¶190. One of the most frequent causes of trismus is a partly erupted malposed mandibular third molar. When clinical examination of a patient presenting trismus discloses a swelling and an inflammation of the tissues confined either to the third molar region or to the tissues adjoining it, with an involvement of the floor of the mouth or the tonsillar region, it usually indicates that the case at hand is a pericoronitis. A roentgenogram revealing the presence of an unerupted or partly erupted third molar makes certain the diagnosis of an infected wisdom tooth pocket (pericoronitis). (See Figs. 53-54, 178-183.)

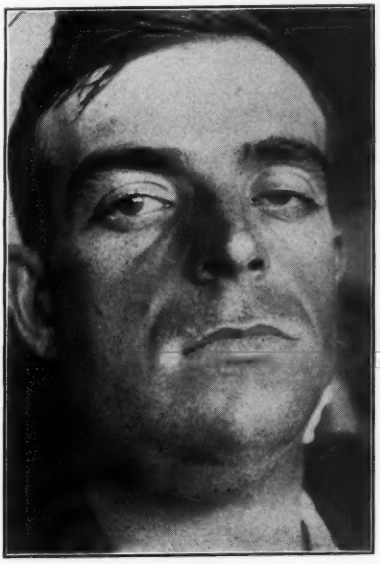

Fig. 178

Photograph of a man, 35 years old, presenting a swelling of the lower part of the right side of the face and of the neck. He was unable to open the mouth sufficiently wide to introduce a finger between the teeth (trismus), due to an infected wisdom tooth pocket, as shown in Fig. 179. (See ¶189.)

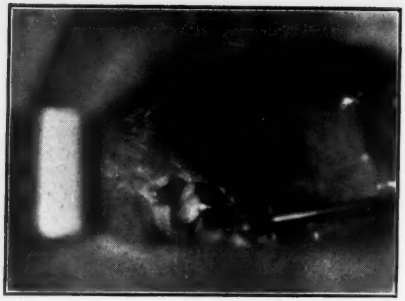

Fig. 179.

Photograph of the mouth of the patient in Fig. 178. After the administration of general anesthesia the mouth was forced open and the partly erupted wisdom tooth, surrounded by an infected pocket, was exposed to view. (See ¶189-191.)

¶191. Trismus caused by an infection and an inflammatory process of the tissues around a partly erupted third molar may be effectively treated by repeated irrigations of the pocket and by dressing it with a strip of iodoform gauze. (See Fig. 179.)

Fig. 180

Photograph of a patient, 36 years old, with a swelling on the left side of the face. Clinical examination revealed an indurated swelling of the left side of the face with a fluctuating area at the center. There was a trismus, as well as infiltration of the mucous membrane of the cheek on the affected side. A roentgenogram disclosed the condition shown in Fig. 181. (See ¶189, ¶197.)

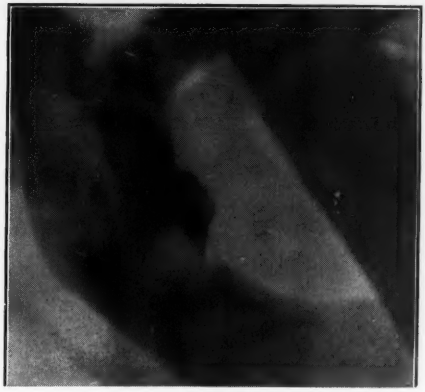

Fig. 181

Roentgenogram of the left side of the mandible of the patient in Fig. 180, showing an unerupted malposed mandibular third molar with resorption of its roots and surrounded by considerable area of destroyed bone. To make a definite diagnosis of this case without roentgenographic examination would be difficult, if at all possible. (See ¶189, ¶197.)

Fig. 182

Photograph of a patient, 29 years old, who noticed a swelling in the right submaxillary region about three weeks before this picture was taken. Having had two miscarriages, she was afraid to seek any medical attention, fearing that any treatment might affect her present pregnancy. When the

swelling reached the condition shown here, pain and trismus developed, which kept her up nights and made taking of food very difficult. The swelling was soft and fluctuating, presenting no signs of an acute infection. Intra-oral examination, made after the mouth had been dilated, disclosed a fluctuating mass under the tongue in the region of the right mandibular molars and a partly erupted third molar. A roentgenogram of the molars revealed the condition shown in Fig. 183. (See ¶189, ¶197.)

Fig. 183

Roentgenogram of the right mandibular molars of the patient in Fig. 182. It reveals a partly erupted wisdom tooth with an extensive area of rarefaction, which is the cause of the trouble. (See ¶189, ¶197.)

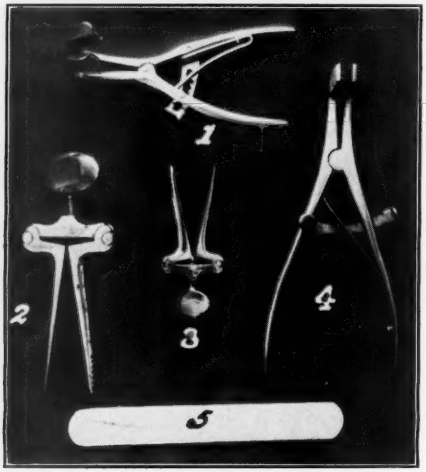

Fig. 184

Various types of mouth gag used for dilating the mouth. When the mouth cannot be opened wide enough to permit insertion of any of the metal mouth gags, a wooden tongue blade (5) may be used to advantage for that purpose. After the mouth has been forced open enough with a wooden blade to permit the introduction of a small metal dilator, it should be followed by any of the larger instruments shown here. (See ¶191.)

1. Denhart's mouth gag.
2 and 3. Heister's mouth gags (2 sizes).
4. Roser-Koenig's mouth gag.
5. Wood tongue depressor.

¶192. When a patient has difficulty in opening the mouth on account of trismus, various mouth gags will be found very useful. By means of these the patient may be assisted in his efforts to open the mouth for the purpose of examination, changing dressing and irrigation of the pocket. (See Fig. 184.)

¶193. False ankylosis, a term sometimes used to designate trismus, is occasionally caused by parotitis, tonsillar or peritonsillar abscesses and an extension of middle-ear diseases. Therefore, when there seems to be no oral cause for the existing condition, examination of the ear and throat is advisable.

¶194. Presence of pain and tenderness in the temporomandibular joints, accompanied by difficulty in moving or opening the jaw (trismus), with no apparent local cause for it, is at times suggestive of an arthritic condition. Application of either hot or cold to the affected joints and rest often relieve this condition. A general treatment for arthritis invariably effects a cure of such cases.

¶195. Patients who develop trismus and pain several days after a mandibular or a tuberosity injection must be regarded with great concern, for these may be the first signs that an injection was made into a septic area, and that the patient is developing a serious and alarming condition, which may terminate fatally.

¶196. Local treatment of patients complaining of trismus following conductive anesthesia is of no avail if their sufferings are due to injections which forced into the system overwhelming doses of microorganisms and their toxic products.

¶197. Besides trismus, in cases where sepsis was introduced during administration of conductive anesthesia, patients may present other clinical symptoms, of which various degrees of swelling, more or less intense pain and sloughing of tissue are the most frequent local signs. Among the systemic symptoms, fever, general malaise, loss of sleep, headache, chills, pains all over the body and a marked leucocytosis are the most prevalent. (See Figs. 185-186.)

¶198. Now and then patients with trismus present also a fluctuating swelling, indicating the presence of pus. Such a condition requires immediate surgical interference in the form of an incision. After the pus cavity has been reached, adequate drainage may be maintained by rubber tubing, rubber tissue or iodoform gauze strips. (See Figs. 180-183, 185-186.)

¶199. Lack of any objective symptoms and a negative roentgenographic examination of a patient who develops trismus and pain several days after the administration of local or conductive anesthesia do not exclude the possibility of a serious and often dangerous condition. Patients presenting such cases must be given the best care and treatment possible. There should be no hesitation as to a consultation

Fig. 185

Photograph of a patient, 37 years old, presenting trismus, a hard swelling of the left side of the face and slight edema around the left eye. This developed after a tuberosity injection made four days previously, an incision into the mucous fold in the region of the left maxillary molars followed by a copious flow of pus. After two weeks of drainage the swelling subsided and the wound healed completely. (See ¶196-197.)

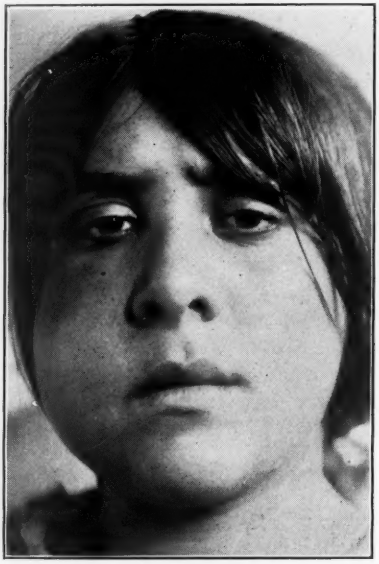

Fig. 186

Photograph of a girl, 14 years old, who complained of trismus and pain soon after an injection of novocain for the removal of a mandibular six-

year molar. The diffuse swelling, which developed a few days following the injection, is not characteristic of infection of either the maxilla or the mandible. Such a persistent swelling generally suggests the formation of an abscess, which requires an incision and the establishment of drainage, a procedure which is usually followed by an uneventful recovery. In this case, however, no abscess had developed. Cold applications to the face and hot saline mouth irrigations relieved the pain and took the swelling down in about two weeks. (See ¶196-197.)

with a general surgeon and a medical man, as well as placing the patient in a hospital for observation.

¶200. Faulty technic in administering a mandibular anesthesia, resulting in an injection into a muscle, has been observed to cause trismus. Absence of any other clinical symptom and a history indi-

Fig. 187

Photograph of a patient, 30 years old, who on the third day following the removal of a left maxillary third molar under infiltration anesthesia developed a shooting pain in the temporo-mandibular region radiating to the back of the head. This was accompanied by a hard ascending swelling involving the temple. The patient had difficulty at the beginning in opening the mouth and on the fifth day was almost completely unable to move the jaw. She became worse, and high fever developed. Although she was taken to the hospital, where every care was given, she died on the fourth day from a general septicemia. (See ¶201.)

cating that this developed as soon as the anesthesia disappeared usually point to the cause of the trouble.

¶201. Prolonged oral operations are occasionally followed by trismus, which is due entirely to trauma. Patients suffering from such a

reaction usually make an uneventful recovery without being subjected to any treatment.

¶202. Sepsis introduced either with the needle or with the anesthetic solution, when injections in the posterior part of the mouth are made, almost invariably gives rise to trismus. As a rule, this occurs several days after the injection has been given and not infrequently is accompanied by other symptoms of local and systemic character. When the swelling which starts at the temporomandibular region begins to ascend, involving the temple, in most instances the case proves very serious. This is indeed a grave sign. (See Fig. 187.)

355 East 149th Street.

(*To be continued*)

[HOW TO WIN RECOGNITION]

We have been hammering and clamoring for I know not how many years at the door of medicine, asking, beseeching, begging for recognition as medical specialists; we give ourselves all sorts of names, oral surgeons, oral specialists, stomatologists, and what not, in hope that we may gain a nod of recognition from the world that shall imply that we are somewhat more than is generally conveyed by the term "dentist"; we have done nearly everything except the right thing, the dignified, manly thing. Now, if we will go to work in real, honest earnest, we shall soon enter into our rightful and desired position without asking permission of the older organizations. The man who feels that he is master of the situation asks no favors of anybody. Just to the extent that one profession produces work worthy of recognition by the great scientific world, that recognition will come quickly and generously.

J. LEON WILLIAMS.

Porcelain Manipulation

A Practical Technic for the General Practitioner

By F. R. Felcher, D.D.S., Chicago, Ill.

X

Preparation of Teeth for Porcelain Jacket Crowns

It is the accepted idea of dentists who have made a study of tooth preparations that the application of porcelain over the dentin should resemble the enamel and for that reason it may not be amiss, for descriptive purposes, to refer to the making of a jacket crown as a *re-enameling process.*

There are certain considerations which must be analyzed in order to be able to produce strong porcelain veneers or jackets. It is almost impossible for the operator to produce as close an adaptation between the porcelain jacket crown and the dentin as is the adaptation of enamel to dentin, especially at the neck. For that reason a small shoulder should be placed below the free margin of the gum, which will give a butt-joint or, rather, a finishing-off place, and which will eliminate any sharp margins of porcelain projecting into the delicate tissues. Teeth properly prepared do not require a shoulder for strength. As a matter of fact, a shoulderless crown would be as strong as the crown with the shoulder if perfect adaptation could be obtained. A shoulder having a width of from ½ to ¾ mm. will suffice for any tooth.

Another factor that must be considered is that, in order to take up stress to prevent breakage, it is necessary that a plane be formed at the point of stress running parallel to the line of stress. In that way the force is applied over the entire crown, and the jacket will be strong enough to resist the forces of mastication.

Therefore a tooth prepared for a porcelain jacket crown may be described as a tooth denuded of the enamel, having a resemblance to the original tooth, with a slight shoulder placed below the free margin of the gum and with planes of stress formed for the purpose of absorbing the force of mastication.

While great advantage is gained by the preparation of teeth for porcelain jacket crowns along anatomical lines, the conservation of the pulp is a factor of utmost importance. In bell-shaped teeth or lower anteriors, where the roots are compressed and where the pulps may be easily exposed, it has been proved that with proper planes of stress it is not necessary to cut beyond the bell portion of a bell-shaped tooth or to go beyond the free margin of the gum in the interproximal spaces, when preparing lower anteriors, to obtain very strong results from the finished jacket crown.

Mention may be made here of a certain type of preparation that is still sometimes used, and which in the opinion of the author will not produce good results. Reference is made here to the *cone* preparations of anterior teeth and *flat-top* preparations of posterior teeth (Figs. 13-14). The cone preparation no doubt is left over from the original preparations for jacket crowns where a facing was soldered to a matrix, which was burnished in the mouth and the crown finished with lower-fusing porcelains. This method is no longer recognized by modern porcelain-workers. Aside from possible destruction or injury to the

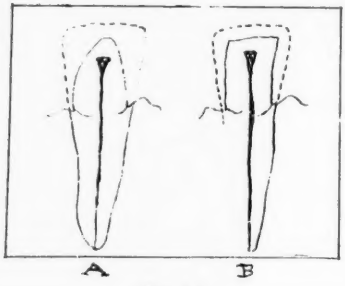

Fig. 13
Cone preparation.
A—incorrect; B—correct.

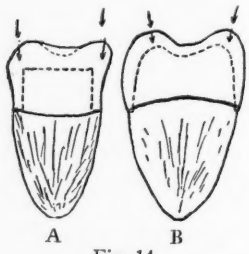

Fig. 14
Flat-top preparation.
A—incorrect; B—correct.

pulp, such a preparation cannot be considered strong, due to the fact that the stress is carried root-wise, necessitating a broad shoulder in order to absorb or stop the stress action. The crown cannot be as strong, due to the fact that the anatomy of the tooth mesially and distally presents concave surfaces, and breakage of the crown often occurs at these points.

Consideration must be given to the fact that trituration in mastica-

tion is accomplished by the cusps of these types of teeth. In studying the direction of force applied to a jacket crown on a posterior tooth it will be noticed that the force is carried to the shoulder, and the same is true of the cone preparation on an anterior tooth. It then becomes necessary to have a very wide shoulder, and the weak points in the concave portions of these teeth mesially and distally are always likely to cause breakage. In both instances injury to the pulp is a vital factor. Wherever possible, it is the duty of the operator to conserve the pulp of a tooth. Modern dentistry demands it. There should be no reason for injuring the pulp in preparing teeth for jacket crowns, and with the *anatomical* preparations described within these pages pulp tissue will be conserved and preparations will be made with less pain to the patient.

There can be no objection to the use of an anesthetic in any operation where it is indicated, but when used in jacket crown preparations the operator must bear in mind that great harm may be done by overheating the tooth and the pulp tissue, possibly causing subsequent pulp trouble. In order to avoid such trouble, it is necessary for the operator to use the same precautions as he would for a tooth that is not anesthetized. Use sharp instruments and keep the instruments cool at all times. A stream of water, either warm or cold when stones are used, or blasts of air on burs or small stones are all that will be necessary.

Teeth should be prepared so that an even veneer of porcelain will be the result wherever possible. It is an accepted fact that the porcelain crown, when a fairly even veneer of porcelain is applied, is stronger than bulk porcelain. For the purpose of obtaining a fairly even veneer it will be necessary, wherever teeth are broken down to a very great extent, to rebuild the lost dentinal structure with castings of either gold or silver.

Cavities in anterior teeth not in the area of actual stress should be filled with cement or any other filling material except amalgam. The objection to amalgam in the anterior part of the mouth is the possibility of its reflecting through the crown. Large amalgam or cement restorations under posterior jacket crowns are not indicated. Amalgam has been known to expand and subsequently cause breakage, and cement does not seem to have the strength equal to the hardness of the porcelain, with the result that if any "give" takes place in the cement, breakage will occur. The most ideal material to be used where lost dentin is to be replaced, prior to building a jacket crown case, is gold or silver. By their use little breakage will be experienced.

Before attempting to prepare a tooth for a porcelain jacket crown, a few factors must be taken into consideration. The first is the condition of the pulp and the adjoining teeth, and for that reason a good x-ray of the tooth is essential. The second is a study of the tooth as it functions in normal occlusion. When satisfied that the pulp is in a healthy con-

dition or, in the case of a non-vital tooth, that the root and the surrounding tissue are healthy, obviate any possibility of an undercut by filling cavities with the filling material which is best adapted for the particular case. In studying the normal occlusion of teeth, note where the tooth bears its greatest stress. A normal upper central has two points of occlusion, one of which is at the linguo-gingival third, at which point

Fig. 15
End-to-end bite preparation.

the lower teeth occlude both for mastication and for a *resting* place in normal occlusion; the other of which is at the incisal, which allows for the forward movement of the lower jaw. In order to protect the jacket crown from excessive stress, planes are formed at these two points. These planes are placed parallel to the stress. Quite frequently we are called upon to open bites or to place porcelain jackets on teeth having end-to-end bites. A *V* groove on the incisal extending from the mesial to the distal surface will overcome the usual difficulties which confront the porcelain-worker in this type of case. The groove absorbs a sufficient amount of strain at that point to prevent the fracture of the crown (Fig. 15).

Fig. 16

Fig. 17

Figs. 16-17
Cuspid preparation.

In the upper cuspid there are three points of occlusion. In the normal bite the occlusion with the lower teeth is first found on the

lingual surface at the gingival third. The protrusion of the lower jaw gives contact at the incisal third, and lateral movements cause contact with the lower teeth at the cuspid ridge on the lingual surface. Therefore, in preparing the cuspid tooth after all the enamel is removed, a slight plane is made at the gingival, another at the incisal, and a third, which is really a reproduction of the lingual ridge, on the lingual surface, extending from the incisal to the gingival planes (Figs. 16-17).

A condition frequently encountered in the porcelain-worker's experience is the case of the child who through some reason or other breaks a tooth, or whose six-year molars are so badly broken down that the tooth requires some sort of restoration in the form of a crown without involving the pulp. Quite frequently these teeth are bell-shaped or have large pulpal horns, and danger of pulpal involvement may be incurred, especially where the root is incompletely formed. A shoulder brought below the free margin of the gum is precluded by a possible loss of the pulp. The tooth prepared for a partial or a three-quarter porcelain jacket will

Fig. 18

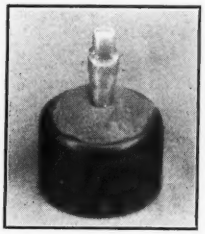

Fig. 19

Fig. 20

Fig. 18
Central preparation.

Fig. 19
Lower anterior end-to-end preparation.

Fig. 20
Lower bicuspid preparation.

be found perfectly strong and will make an ideal restoration until the advisability of a change to a full porcelain jacket crown is indicated.

Most teeth that are to be prepared for jacket crowns will require the removal of the enamel in its entirety. The exception will be found in some peg-shaped teeth or in bell-shaped teeth and some lower anteriors. With preparations for bell-shaped teeth the operator need not go beyond the bell, in order to prevent injury to the pulp, and possibly a three-quarter jacket will be the result. In lower anterior teeth where the roots are compressed, and where the danger of pulp exposure is great, it is

only necessary that in the interproximal area the shoulder not only should be made very narrow but should not be carried beyond the free margin of the gum.

Operators use different methods for the removal of the enamel. For instance, there is the cleaver method, whereby the enamel is cut crosswise and lengthwise through to the dentin and then by means of cleavers is chipped away. It has been the experience of the author to find that the greatest success is obtained by the use of stones and burs properly and systematically applied. The instruments necessary for the removal of the enamel by this method are the following:

A rapid-cutting stone, about 5/8 inch.
Separating stones. Disks.
Small mounted stones. Strips.
Cross-cut or plain fissure burs.
End-cutting or safe-sided burs.

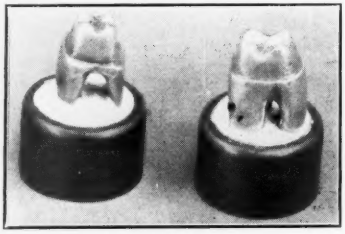

Fig. 21
Molar preparation.

Preparation

As has been previously mentioned, the first requisite is that the operator make sure of the condition of the tooth and the surrounding teeth, and that he have the satisfaction of knowing that the tissues are in a healthy condition. This may be ascertained by use of the x-ray and by whatever means he may choose to determine the vitality of the tooth. Then the bite must be studied so that the operator may know where the planes of stress should be placed. Where a great portion of the tooth is present, the wear will be a good guide; otherwise the jaw movements are studied.

If the tooth is vital and sensitive, an anesthetic may be indicated, though usually it is unnecessary. Cold water or, as some operators recommend, warm water and blasts of cold air will suffice to allay the pain while the operation is in progress. Where an anesthetic is used, a word of caution may not be amiss here. The operator should be sure that he is taking the same precautions with the anesthetized tooth as he

does with one that is not anesthetized. Considerable damage may be done to the pulp by overheating the pulp tissue, which may subsequently be destroyed. Keep the instrument cool at all times and be sure that sharp instruments are used.

Preparing a Cuspid Tooth for a Porcelain Jacket Crown

First, take a rapid-cutting stone about 5/8-inch in diameter, and start either at the mesial or distal or, if preferred, in the center of the incisal and remove the enamel from the incisal surface clear across, leaving somewhat of a tip or cusp, as is seen on the normal cuspid tooth (Fig. 22). If the bite is normal, then by holding the stone at the proper angle the incisal plane may be put in at the same time that the enamel is denuded at the incisal. Cut only slightly below the dento-enamel junction, which can easily be seen. Then, with a separating stone, cut the enamel from the mesial or distal, starting at the dento-enamel junction at the incisal and cutting a slight taper that will extend below the free margin of the gum (Fig. 23). The taper is necessary

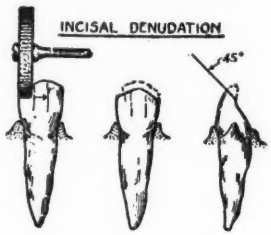

Fig. 22

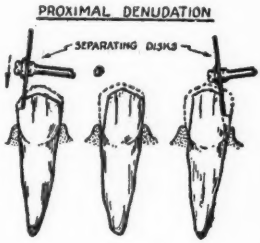

Fig. 23

and will aid later in making the shoulder. Carry out the same on the opposite side and have the taper extend so that the lines converge toward the incisal. By the use of the stone, or smaller stones if warranted, remove the enamel from the labial and the lingual surfaces and form whatever stress protection the case calls for. Round off all angles or corners, as a sharp corner may weaken the finished crown (Fig. 24).

If the cuspid tooth has an end-to-end bite, a *V* plane placed in the incisal surface extending from the mesial to the distal will prevent breakage. The tooth denuded of enamel will resemble a cuspid, except that it will have a slight taper. The lingual surface should have a slight ridge, the cuspid ridge, to compensate for the lateral movement of the lower jaw in mastication. It should have the incisal plane to take care of the stress on the finished crown when the lower jaw is moved forward,

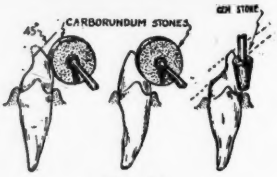

Fig. 24
Removing the enamel.

and there should be a stress plane where the lower tooth articulates with the tooth in normal position.

Approximately the same technic is used for the removal of the enamel of any tooth. The object that must be kept in mind for the best results is to try to maintain an even veneer in the finished crown.

Preparation of teeth where the coronal portion of the tooth has been lost requires a casting restoring the lost dentin, but having the proper planes of stress reproduced. While many methods may be used by the operator, possibly the simplest restoration can be made by cutting away a portion of the root until it is slightly below the free margin of the gum, maintaining a slight bevel mesio-distally. Place a slot or key extending from the pulp canal to the width of the shoulder at the lingual wall of the root, and when the casting is finished, the casting will have a sufficient lock to prevent rotation. Fit a post into the root canal. The wax can be carved in the patient's mouth, any subsequent corrections in the casting to compensate for stress being made by grinding the casting where necessary. Set the casting with cement and proceed with the regular impression technic. There may be a slight inconvenience in fitting the band by this method.

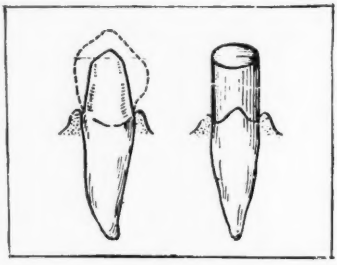

Fig. 25
Fitting the band.

It is at this time that the copper tube should be tightly fitted to the tooth, and it should extend slightly below the gum. It will be

remembered that the tooth is denuded of the enamel only. There is no shoulder present as yet, and it will be seen that it is easier to fit a band before the shoulder is cut than after. The copper band should be properly festooned and, in order to prevent accident to the band, it is a good policy at this time to fill the band with some good modeling compound and to touch the portion that is later to come in contact with the prepared root with a slight smear of vaseline, which facilitates its removal from the tooth. An *X* is placed on the labial surface of the band (Fig. 25).

Cutting the Shoulder

When there is no enamel on a tooth, a shoulder can be made very easily. Attention is again called to the slight taper which the preparation has at this time. With a cross-cut or a tapering square-end fissure bur, straighten the gingival taper near the gum line and you immediately have a shoulder as a result (Fig. 26-A). Next carry this

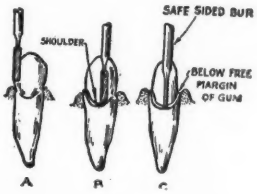

Fig. 26
Cutting the shoulder.

shoulder completely around the tooth level with the gum, but not under the free margin (Fig. 26-B). With an end-cutting bur of a width to correspond with the size of the shoulder, carry this shoulder about one millimeter below the free margin of the gum (Fig. 26-C).

Some operators prefer to pack gutta-percha around the tooth at this time and dismiss the patient for about twenty-four hours. Then the shoulder is carried higher than at the first sitting, giving a better opportunity for the gum to grow down and completely cover the shoulder or the joint of the finished work. The objection to this method is that vital teeth become very sensitive after being ground.

The question of pulp involvement should not bother the operator unless through carelessness the tooth is overheated. While it is true that teeth are quite sensitive at the gingival portion, a study of a tooth will show that the pulp is not near the surface at this point. Use sharp instruments and keep them cool.

7616 Phillips Avenue.

(*To be continued*)

A Clinical Contribution to the Pathology of the Oral Cavity

By Arthur Chaim, Physician and Dentist, Berlin (Friedenau), Germany

(*Continued from December*)

Case 5

This case is of extraordinary interest. (Fig. 7.) W., male, 42 years old, married, came to me on account of pains in the maxilla. Acutely suppurating stumps were removed under local anesthesia. In the first third of the upper lip on the right side I noticed a small excoriation, which the patient on inquiry ascribed to burning by a cigarette, and

Fig. 7
Primary sore on the upper lip.

which during the operation was protected by gauze and white plaster. Since the lymphadenitis, in spite of the primary healing of the jaw wound, not only did not improve but rather became larger, I made a blood test, which showed at first a Wassermann with 1+, but a positive Meinecke reaction. I gave a stimulating neosalvarsan injection and after two days repeated the blood test, the result being 4+ and a positive Meinecke reaction. I then carried on a treatment of neosalvar-

Fig. 8
Primary sore with double lymphadenitis.

san. The primary sore and the lymphadenitis disappeared promptly during treatment, the primary sore after the fourth injection and the lymphadenitis after the seventh injection. (Fig. 8.)

If this is a case of a typical region of predilection for syphilis, then

we dentists more often observe atypical localization of venereal diseases. To cite three cases:

(*a*) K., male, 32 years old, bachelor, returns from a journey, complains of glandular swelling, which he attributes to an ulcer near the premolars, and which has existed for several days. Examination showed on the left side of the mandible, in the neighborhood of the former premolars, a deep abscess crater with indurated edges and dirty surface near the mucous fold, about the size of a bean. A smear gave Spirochaeta pallida. Specific treatment was begun. The patient was a pipe-smoker and had possibly shared his smoke with some one and so infected himself with the virus, thus causing a primary sore in this unusual place.

(*b*) Mrs. M. had a colleague extract a left mandibular third molar. Some days afterward on waking she noticed blood in her mouth. This was accompanied by earache, difficulty in swallowing and great salivation. She attributed the pains to the injection into the jaw. On examination I found an unexceptionable extraction wound plugged by a solid thrombus. Since the condition of the gum papillae did not account for the hemorrhage, following up the history, I examined the tongue and fauces and found, on the back of the pharyngeal wall, a syphilitic ulcer. The patient had no suspicion of the presence of venereal disease. The husband, after severe questioning, admitted to syphilitic disease. Even if syphilis is frequently denied, the disappearance of symptoms to specific treatment points to infection by this disease. The following case shows this excellently.

(*c*) A Mrs. N. came with the complaint that her upper denture did not fit well. She could not stand it because an ulcer had formed on the palate at the edge of the denture. A dentist had cauterized it with copper sulphate, and in the local insurance clinic she was ordered a mouth wash and the back edge of the denture was filed down. In spite of this, however, she did not improve. In the examination I ascertained that a gumma existed in the center of the arch of the palate, which soon disappeared with a prescription consisting of 10 grams of potassium iodid in 200 grams of distilled water (a tablespoonful three times a day).

In acute inflammations, as in acute exacerbation of chronic inflammation of the antrum of Highmore, patients are often tortured by the most violent pains in the region of the infra-orbital nerve or the supradental nerves. On the other hand, in acute infection of the frontal sinus the most severe neuralgias occur in the distribution of the supra-orbital nerve, in the form of intermittent neuralgia. The pains radiating into the teeth often drive the patient first to the dentist, and every dentist, by mastering the methods of rhinological examinations, should be in the position to distinguish dental from genuine diseases of the antrum.

In my experience the percentage of dental empyemas of the antrum of Highmore is considerably greater than former statistics seem to imply. For dental empyema of the antrum the Luc-Caldwell operation is the operation of choice. In very long standing cases I prefer Denker's radical operation. The teeth causing the empyema I preserve by resection of the apex of the roots. The out-of-date method of Cooper should come into question only where advanced age and loss of strength forbid more extensive operative interference.

The cases of difficult dentition (Figs. 9-10) are usually accompanied by especially violent pains. From the many cases of this kind I will cite the following, which is interesting because of its complications:

Fig. 9
Difficult dentition with consecutive Ludwig's angina.

Fig. 10
Retained right mandibular third molar causing neuralgic pains in a 73-year-old patient.

Case 6

Sch., male, 26 years old, suffered for a year and a half from a left-sided recurring tonsilitis. The last time it went on to tonsillar abscesses with high fever. For three weeks he had suffered from severe drawing pains in the left mandible. During one of these acute exacerbations he was handed over to me.

Examination showed a jaw without dental caries, but with very large teeth extraordinarily close together. The left mandibular second molar was partially covered by the mucosa of the bordering soft parts. The front part of the left side of the palatal arch was markedly infiltrated and showed the remains of former incisions and also lacunar tonsilitis. There was strong lymphadenitis.

On raising the mucous cap, which partially covered the left mandibular second molar, pus welled out freely. On cautious sounding there could be felt deep down a substance which from the smooth surface I took to be a third molar. As a result of this and the x-ray finding, I advised the patient that the retained third molar was the cause of the frequent attacks of neuralgia and the one-sided tonsilitis.

As the front part of the palatal arch was swollen with inflammatory infiltration, I anesthetized the jaw extra-orally. With a suitable buccogingival and lingual incision I laid bare the retromolar triangle and a considerable portion of the ascending ramus. After hard chiselling I laid bare the third molar, which was lying quite horizontally in the direction of the tongue. The chewing surface of the left mandibular third molar touched with one protuberance the under third of the root of the left mandibular second molar partially embedded in the mandibular canal and partly reaching to the sulcus mylohyoideus, close in front of the attachment of the ligamentum spheno-mandibulare. With this arrangement there could be only lingual rotation, since the overhanging covering of the left mandibular second molar and the bony bed in the ascending ramus rendered impossible an outward rotation.

At last I succeeded in removing the unusually large third molar, while saving the left mandibular second molar, during which operation the head of the temporo-maxillary joint got, for the moment, out of its socket. There then started a considerable hemorrhage, which I stopped with gauze. The edges of the lateral cut were stitched and the remainder plugged. The patient was inclined to vagotonia and as such in my experience, often inclined to hemorrhage, due to endocrine atony of the vasodilators and also to deficient calcium metabolism because of endocrine disturbance.

The healing of the wound was normal and, with the exception of a slight rise in temperature on the day of the operation, showed no rise later. There was little swelling. After five days the neuralgic pains, which were increased by the tearing of the mandibular nerve, which had set up a traumatic neuritis, ceased completely. While the patient formerly had an attack of more or less severe tonsilitis every three weeks at least, none of these reappeared, and no neuralgia has occurred up to the present time (seven months after the operation).

Cases of this kind, through causing inflammatory infiltration of the floor of the mouth, may lead to an attack of Ludwig's angina, threatening life. In the meeting of the *Gesellschaft für Zahnheilkunde* at Berlin in March, 1924, on the occasion of the clinical demonstrations, I showed a patient in whom a third molar, lying in toward the floor of the mouth, had caused threatening symptoms (temperature 40° C. or 104° F., pulse 120, Ludwig's angina, edema of the glottis), and from whom, as a last resort, I had to remove the tooth by an external in-

cision at the angle of the jaw on the left side. Such an operation had not been previously described, as far as I know.

Case 7

In Case 7 many interesting points are involved. H., female, 32 years old, complained of frequent attacks of neuralgia in the third branch of the trigeminal, especially before the menses. I ascertained that besides she had a mild thyrotoxicosis and an absence of the left mandibular third molar. By x-rays we found that this was retained, and that the apex was situated in the mandibular canal. I pointed out to her that if I chiselled out the left mandibular third molar, her neuralgia would disappear. On further complaints from her (frequent bleeding of the gums and loosening of the teeth) I explained to her that these symptoms, according to my observations, were frequently those of endocrine disturbance and were primarily caused by ovarian disturbance, and that the thyrotoxicosis was only secondarily responsible for the hypertonic-spastic type of a paradentosis.*

This patient had to go away for six weeks on account of family affairs, and she decided to have the chiselling out of the left mandibular third molar, the cause of the neuralgia, on her return. While away, she had an upper premolar on the same side removed. After a fortnight violent neuralgic pains occurred in the second division of the trigeminal. Since shortly before the menses the third division of the trigeminal made its presence known in a very decided manner (this was also a confirmation of the spastic diathesis), and the pain in the second division became so unbearable that the patient broke her journey earlier than she intended, so as to get some rest through the chiseling out of the left mandibular third molar.

On examination it was plain that the neuralgia in the second division was caused by the alveolar edge left after the extraction. The slightest pressure on this started an attack. The chiselling out of the left mandibular third molar was difficult, because the axis of the tooth was inclined toward the tongue, and because of the enormously broad overhanging external oblique line. After this procedure I removed the alveolar edge in the maxilla. No after-pains occurred. At one stroke she was freed of her neuralgia, and now for seven months it has not recurred. The teeth became firm again, so that the hypertonic-spastic paradentosis as a symptom of ovarian disturbance was proved apart from the haematological confirmation, for the lymphocystosis previously demonstrated had quite disappeared.

* On this expression chosen by me for this condition I have already reported at a dental pathological evening at Weski's in February, 1926. Details are published in *Vierteljahrszeitschrift für Zahnheilkunde*, Vol. 4, 1926 (Meusser).

I will only remark in brief here that since 1911, when I performed a resection of the second molars of both the maxilla and the mandible with the best of results, I have consistently proceeded to resection of the roots in cases where I could not prevent the occurrence of a periapical inflammation which started in spite of the most careful treatment and filling of the roots. The few cases where through careful filling of the roots alone I caused closing of sinuses and the reduction or complete disappearance of granulating foci (x-rays alone do not always prove that the process is arrested) were small in proportion. On the contrary, the clinical *and* x-ray examinations showing the permanent success of the surgical treatment of the roots are so excellent that on a critical statistical examination of a large number of operations extending over fifteen years I must say that, compared with previous methods of treating chronic apical disease, the surgical treatment alone holds out a prospect of permanent cure. From this it follows that the indications for resection of the apices of the roots in all teeth which are worth retaining (and this is naturally so with molars) should be undertaken much more often than formerly.

Rheinstrasse 17.

LEST YOU FORGET!

The American Dental Association will hold its Seventieth Annual Session in Minneapolis, Minnesota, August 20-24, 1928.

Clarence J. Grieves, D.D.S.

Whereas, The members of the Baltimore City Dental Society have learned with deepest sorrow of the death of Dr. Clarence J. Grieves, who was taken from this life on November 4, 1927, after a long and useful career of unselfish devotion to the progress of dentistry; and

Whereas, His scientific researches and service to the profession have been such that we, his confrères, will continually point to his achievements with pride; his unassuming, affable and genial personality, his high ideals and strong convictions in those principles in which he believed will keep his memory fresh in our minds; dentists everywhere will cherish his memory, but the influences he has set in motion among his friends in this Society will roll on through the long years of eternity; and

Whereas, We share the great sorrow that overwhelms his devoted wife, who has so faithfully shared his affections and sorrows, it is impossible to overhonor the brave heart that has tried so hard during the last few years of his life to shield him from the hurts and cares of an invalid; be it therefore

Resolved, In remembrance of one we loved, that a copy of these resolutions be spread upon the minutes of this Society and a copy sent to each of the principal journals and to the family of the deceased.

James H. Ferguson, Jr., *Chairman,*
C. Adam Bock,
C. T. Haile,
C. E. Mullan,
W. R. Merriam,
Necrology Committee of the Baltimore City Dental Society.

Resolution of Respect

Whereas, It has pleased Almighty God to call from his labors our beloved friend and highly esteemed coworker, Clarence J. Grieves; and

Whereas, The profession, through his capacity for original research and scientific investigation, has lost a capable and unremitting worker, and our Association a devoted, loyal and active member; be it

Resolved, That the Maryland State Dental Association extend to the bereaved family our deepest sympathy in this hour of sorrow, which is shared not only by those bound to him by natural ties but by the profession at large; and be it further

Resolved, That a copy of these resolutions be sent to the bereaved

family, a copy spread on the minute book of the Association and copies sent to the leading dental journals for publication.

GEORGE E. HARDY
B. LUCIEN BRUN
J. BEN ROBINSON, *Chairman.*

Holmes C. Jackson, Ph.D.

At a meeting of the Faculty of the New York University College of Dentistry, held on October 26, 1927, the following Preamble and Resolutions were unanimously adopted:

Whereas, The New York University College of Dentistry has sustained a most serious loss in the death of its beloved Dean, Counsellor and Friend, Holmes Condict Jackson, who gave his life to Science, Medical and Dental Education; be it

Resolved, That we, the Faculty of New York University College of Dentistry, in executive council assembled, do recall with love and admiration his great work as a leader and executive, scientist and educator, and feel a deep sense of grief in the loss of a man of such exalted character and sterling integrity; and be it further

Resolved, That the Secretary of the Faculty be instructed to inscribe these resolutions in the minutes of the meeting and to forward a copy to the family of the deceased.

MARSHALL S. BROWN, *Acting Dean.*
W. H. O. MCGEHEE, *Secretary.*

PRACTICAL HINTS

This Department is now being conducted from the office of The Dental Digest. To avoid unnecessary delay, Hints, Questions and Answers should be addressed to Editor Practical Hints, The Dental Digest, 220 West 42d Street, New York, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Capping Pulps

From the number of inquiries that we receive in regard to the capping of pulps we are forced to conclude that this operation is more generally practiced than we believed. Furthermore, in our opinion, it is attended by more danger than is generally recognized. This applies especially to the treatment of fully formed, permanent teeth.

Pathogenic organisms have been demonstrated in the pulps of teeth that have cavities, and it is not necessary that those cavities be very deep. To a certain extent, then, the pulp is infected. How much more will it be infected when an exposure has been made by either caries or instrumentation!

But that is not all. The findings of some investigators, especially Dr. Rickert, would lead us to believe that a partially putrescent pulp is more dangerous to the organism as a whole than a poorly filled root canal, and the worst part of it is that this half-dead or dying pulp will, in the majority of cases, respond perfectly to all tests for vitality. In fact, it is often hypersensitive. And, lastly, it is well known that the dental pulp has little power of recuperation.

Now, what happens when we cap a pulp? The pulp is infected and more or less seriously injured, and to a certain extent it has undergone degenerative changes. Yet, because we test the tooth from time to time and it responds to the tests, we feel safe and congratulate ourselves that we have prevented the danger of abscess and focal infection. Just the reverse is often true, and the tooth may be more dangerous, with the possibility of its "blowing up" at a most inopportune time.

The only excuse for capping a pulp is when the root is not fully

formed, and it is done with the hope that this process will be completed before the final death of the pulp.

Therefore do not feel too self-satisfied when a capped pulp responds to vitality tests, and do not make pulp-capping a routine procedure in fully-formed teeth.

EDITOR, PRACTICAL HINTS.

Editor, Practical Hints:

I am sending some x-rays of teeth of a man 34 years old. He has rheumatism very badly in the left arm. Are these teeth bad enough to cause this condition, and would you advise their extraction?

Pyorrhea pockets are to be seen, but not any great amount of pus. I am treating for pyorrhea.

W. R. M.

ANSWER.—The radiograms are so poor, i. e., they are distorted and indistinct, that it is impossible to make a good radiographic diagnosis. The periclasial destruction is not deep enough to account for the trouble, and, as far as I can tell, there are no periapical pathological areas. Some of the edentulous areas look as if they might have residual infection, but I should want to see good radiograms before stating so positively. There is deep decay under a number of the fillings, which not infrequently is responsible for metastatic infection.—G. R. WARNER.

Editor, Practical Hints:

I have a patient, male, 32 years old, of stocky muscular build, whose teeth have all been loosened because of traumatic stress. There is a decided recession of the gums, but a distinct lack of suppurative or inflammatory conditions.

He has powerful masseter, buccinator and temporal muscle development, and admits a habit of gritting his jaws together while at work (he is an automobile mechanic). He is very desirous of retaining his teeth and will submit to any form of treatment to do so. He has promised faithfully to try to break the habit.

1. Do you think traumatic stress alone has brought on this condition?

2. What treatment would you advise to prevent exfoliation of these teeth?

3. Do you think that wearing a soft rubber cap splint while at work to relieve the traumatism will help restore firmness?

I might add that the patient is in robust condition and free from any chronic condition.

I. W.

ANSWER.—From your description of the case of the man 32 years old whose teeth have been loosening, I should think it not only possible but probable that the loosening is due to traumatic occlusion. My first step in deciding how to treat this case would be to have a complete radiographic examination and good plaster impression study models. Without the information furnished by these two things I should not be able to advise what to do. I should be very glad to help you if I had the radiograms and study models for study.—G. R. WARNER.

Editor, Practical Hints:

My problem is the proper manipulation of deciduous teeth that pain the little tots, teeth with their pulps practically exposed but not bleeding, sensitive to deep excavation but not tolerant of that mildest of all temporary fillings, eugenol and zinc oxid.

Would you remove the tooth in these cases (although we know this may predispose to malocclusion), or is the removal of nerve and canal contents indicated, with all the unappreciated trouble and time that go with it?

What do you regard as the most practical filling material in deciduous teeth?

And what kind of anesthetic would you use in their removal?

H. G.

ANSWER.—The proper manipulation of deciduous teeth that have become painful through caries is a problem that we all have to face. It has been my practice to keep the teeth in place as long as is consistent with protection of the health. We use a sedative cement. If the pulp dies, this same material may be used in the canals and will usually keep them sweet and free from infection. If the canals become infected, I believe that the teeth should be extracted, because these children are very susceptible to infection and, as their hearts are also extremely susceptible to infection, it is not safe to leave infected teeth in their mouths.

Amalgam is my preference for filling material for deciduous teeth where the pulp is not involved. When the pulp becomes involved, the filling material has to be selected in accord with subsequent developments.

Children take nitrous oxid and oxygen well and they are apt to have less fear of a subsequent operation if teeth are removed under this anesthetic. Occasionally you find a child who does not object to the nerve block and in such a case, of course, the nerve block would be indicated. —G. R. WARNER.

Editor, Practical Hints:

We should very much appreciate your advice and help on the following case:

A woman, about 45 years old, had a lower right third molar removed three years ago, with a mandibular injection. From the time the anesthesia had worn off she began to suffer excruciating pain, especially at the right corner of her mouth. She was given opiates for several weeks to control the pain. (I am giving the history as I got it from her.) The pain has lessened greatly until the last year and she sees no difference from that time excepting, however, three months following the time an x-ray picture was taken, when she suffered no pain.

One cannot touch the corner of her mouth, on either the upper or the lower, without causing great pain. If her lips become dry and she opens them suddenly, the pain starts.

P. S.

ANSWER.—Undoubtedly the inferior dental nerve was injured by the extraction three years ago, by the crushing in of a thin layer of bone between the root and the nerve, by an actual plunging into it by a curet or other extracting instrument, or in some other way.

This continuing distress may, of course, be caused by a pressure or binding on the nerve by scar tissue.

It is very likely that this condition could be entirely relieved by an operation consisting of laying the gum back in the third molar region and removing sufficient bone to free the nerve of any such impingement. You might be able to ascertain by very clear radiograms taken at different angles whether or not this impingement has occurred.—V. C. SMEDLEY.

Editor, Practical Hints:

Dr. B, a medical man, 69 years old, in apparently good health, complained of rheumatic pains in the left knee. An x-ray not being available, examination showed an area of inflammation in the inferior left third molar region with swelling of the cheek.

A small black spot was visible on the gum, seemingly a portion of root. Without anesthesia an elevator was used and a fully formed tooth uprooted. The crown was intact but black, the root markedly decayed.

A subsequent x-ray revealed an area of bone destruction almost to the lower border of the mandible. The x-ray further revealed three other impactions of the wisdom teeth, the lower right being a vertical one. Would you advise removal of these other impactions, although negative?

The bone destruction was taken care of and healing is almost complete at this writing. The pains in the knee also have disappeared.

S. G.

ANSWER.—This is indeed an unusual and interesting case of necrosis. If you would care to send your x-rays of the other three third

molars, I should be glad to go over them with the x-ray and diagnosis specialist in our group and advise you of our combined opinion as to whether or not it is safe to leave these teeth.

We should also, of course, be interested to see the radiograms of the necrosed area and the third molar that you removed. It would be difficult to give an intelligent opinion without having the radiograms for consideration and study.—V. C. Smedley.

Editor, Practical Hints:

Will you please inform me as to your treatment for sensitiveness at the gingival margin so that the tooth will not be discolored by the treatment?

What restorations would you use for the replacement of the lower first molar, the bicuspid being perfect and the molar having a small occlusal cavity?

C. C. C.

Answer.—Painting these surfaces with a solution of one-third chlorid of zinc, one-third tincture of iodin and one-third pure water is quite effective in reducing sensitiveness. Formalin or formocresol burnished into these surfaces with a hot instrument is frequently very effective in reducing sensitiveness.

In answer to your second question, I should use for this purpose a fixed bridge supported by carefully fitted gold inlays, with ample anchorage for retention in the molar and the bicuspid. These inlays should be cast with a hard, tough gold.—V. C. Smedley.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of The Dental Digest, 220 West 42nd Street, New York City.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE, CARE THE DENTAL DIGEST, 220 WEST 42ND ST., NEW YORK. YOU MAY HELP A NUMBER OF GIRLS WHO ARE JUST BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. OR IF YOU NEED HELP NOW WRITE TO ELSIE PIERCE—SHE'LL HELP YOU.

Dear Miss Pierce:

Will you kindly tell me the best method for removing ink and developer stains out of a white uniform? M. R., N. Y.

ANSWER.—There are several ink eradicators on the market that can be purchased at department stores, stationery stores or drug stores for the removal of ink stains from white goods. These of course should be used with care and strictly according to directions or the fabric may be injured.

For the removal of developer stains from white uniforms we suggest soaking the stained portions in a 5% solution of oxalic acid or acetic acid for approximately two minutes, then carefully washing out in clear water from one to two minutes, and then applying a saturated solution of bleaching powder (calcium hypochlorite). If after ten minutes the stains have not entirely disappeared, we suggest washing out the bleaching powder thoroughly and reapplying the acid solution, washing, and, if necessary, another application of the calcium hypochlorite solution, finally washing thoroughly. Fixing solution stains may be removed by thoroughly washing with soap and water.

Dear Miss Pierce:

I read the *Questionnaire* with great interest and have found therein

many very useful suggestions which have helped me greatly. I make bold to ask you what I can do for my hands, which trouble me very much from excessive perspiration; also, what I can do for tired, aching feet. In this work of dental assistant one is on one's feet a great deal, of course, and sometimes when the end of the day comes, I can hardly walk out of the office, for my feet ache so badly. I wear sensible, low-heeled shoes and have tried both kid and canvas, but this does not seem to make any difference. I am sure that this will help others of your readers, too. A. F., Ill.

ANSWER.—Hands that perspire excessively are annoying, and I believe that you can help this condition very much in a very simple way. Fill a salt shaker or a talcum powder holder with finely pulverized borax powder, keep this on your wash basin shelf, and every time you wash your hands, dry them carefully and dust with this borax powder. Any excess may be wiped off with a dry towel.

Aching feet really make people ill, for every nerve and every muscle in the body react to the aching condition of the feet. It goes without saying that if we are to do our day's work in comfort, foot health is imperative. The care of the feet is just as important as the care of the teeth, hair, hands, and any other part of the body, and yet people illtreat their feet probably more than any other part of the human frame.

You say you wear comfortable shoes. They may seem comfortable to you, but have you taken the trouble to have your feet measured properly and your shoes carefully adjusted to these measurements? Too large or too loose shoes can be as harmful as too short or too tight ones. Have you consulted an authority on foot anatomy and made sure that you arches are normal? Fallen arches bring about much suffering and many ills, such as headaches, backaches, rheumatic pains in legs and knees, etc. Curvature of the spine has been caused by incorrect walking or standing. Do not buy arch supports indiscriminately, for improperly or poorly constructed arch supports are as bad as none at all, where needed.

Do not neglect the fit of your stockings; pleats and creases in ill-fitting stockings can cause much misery, not to speak of blisters, corns and calluses.

Taking it for granted that you have taken care of all of these things, have you given your feet daily hygienic care? Daily bathing for ten or fifteen minutes in hot water, to which coarse salt (sea salt) has been added, followed by dashes of cold water and massage with alcohol, should help you. If your feet perspire very freely, dust them with the powdered borax. Do not attempt to be your own "corn doctor." If you are troubled with corns, place yourself in the hands

of a competent chiropodist. The promiscuous use of corn cures has caused infections, and the cutting of corns with a knife or a razor blade also has resulted in serious trouble. Wounds on the feet are dangerous.

Be sure always to keep your feet dry and warm at all seasons and in all weather. If you suffer with cold feet, look to your circulation and do not wear tight garters. There is no question that aching feet interfere with one's work, spoil one's disposition, cause one's countenance to reflect misery and are responsible for loss of time and for much inefficiency.

I trust that you will gain relief by following closely the suggestions given.

We appreciate your interest in this department. It is maintained in a spirit of service for the enjoyment and assistance of all who are interested in it.

Dear Miss Pierce:

I read the letter by X. Y. Z. in the September *Questionnaire*. I do not know where she is working, but I wish I could be lucky enough to find one like her. I have a two-chair office, a busy practice in a town of 6,000, and should expect to pay at least 25% more, besides a quarterly bonus on gross collections. She could have a two-weeks' vacation with pay, besides the regular half-day. After perusing the letter again and taking it at face value, such an assistant should average at least $18.00 a week. These are my thoughts! P. F. R., D.D.S.

Dear Miss Pierce:

I need an office assistant. She should be intelligent and neat-appearing and should have knowledge of typewriting.

New York.

ANSWER.—This department receives a number of requests similar to the one above. We regret that we cannot furnish assistants on demand, as we have no employment bureau. May we suggest that there is a department in THE DENTAL DIGEST that takes care of the "wants" of the dental profession in this and other respects, and that an advertisement therein might bring results.

Educational and Efficiency Society for Dental Assistants, First District, New York

The regular meeting of the Educational and Efficiency Society for Dental Assistants, New York, was held on November 15, 1927. The

membership was well represented, and there were many visitors, both dentists and dental assistants.

The first speaker was Dr. Alfred Owre, Dean of the Dental School, Columbia University, who discussed *Efficiency*. Citing illustrations from history, Dr. Owre showed that diet is a tremendous force in attaining and retaining health, and that efficiency is controlled by health. Another speaker was Miss Iris Vorel, astrologer, who told in a very interesting way of the influence of the stars on human destiny.

Again this season the Society has organized classes to be held on Thursday evenings under the supervision of members of the dental profession. On November 10, Dr. George Wood Clapp gave a very instructive lecture on diet and teeth. On November 17, the first of a series of classes in x-ray assistance was given by Dr. A. L. Greenfield. A class in accounting and bookkeeping was given by Dr. Clapp on December 1, emphasizing the value of the dentist's time, and the members received a better understanding of the business side of dental practice. On December 8, a lecture was given by Mr. H. M. Chandler, demonstrating another system of bookkeeping. Thus were the members afforded the opportunity of becoming familiar with two methods of keeping records. Instruction will be given also in the fundamentals of bacteriology, first aid, sterilization and other subjects pertinent to dental assisting. For further information address Miss Agnes F. MacNeil, Chairman of Classes, 113 South Elliott Place, Brooklyn, N. Y.

On December 7, a group of clinics was successfully presented at the Better Dentistry Meeting of the First District Dental Society, New York, including demonstrations of first aid, economy suggestions, and a library exhibit. A topic discussion on the competent dental assistant and her work was well attended.

At the December 19th meeting of the Clinic Club a lecture and a table clinic on x-ray assistance were presented. The Clinic Club meets regularly on the third Monday evening of each month, September to May, inclusive. At each meeting a phase of dental assisting is studied and better methods for service are evolved. The next meeting will be held on January 16, 1928, at the office of Dr. LeRoy S. Edwards, 113 South Elliott Place, Brooklyn, N. Y., when a lecture on rubber will be given by one of the members, and there will be also a talk by an authority on the subject on anesthesia, the care of syringes, the preparation and care of solutions, etc. All members of the Educational and Efficiency Society for Dental Assistants are eligible for membership in the Club and are urged to join. Martha Hall, Chairman, may be reached at 221 Autumn Avenue, Brooklyn, N. Y.

The annual midwinter entertainment and dance will be held on Wednesday, January 18, 1928, at the Hotel McAlpin, New York.

The Society meets regularly on the second Tuesday evening of each

month, October to May, inclusive, at the Academy of Medicine, New York. The Society does not conduct a registry for dental assistants, nor is it in any way connected with such an enterprise. Its activities are purely educational, consisting of lectures, classes and clinics. Its motto is *Greater Education for Greater Efficiency,* and all meetings are held in accordance with the rules of parliamentary procedure, following a plan based on the highest ideals and finest ethics.

The regular meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, will take place at the Academy of Medicine, 2 East 103d Street, New York, on Tuesday, January 10, 1928, at eight o'clock. Dr. Herman E. S. Chayes, President of the First District Dental Society, New York, will be the essayist. Dr. Anna Ingerman also will speak, her topic being *Ductless Glands as a Key to Health.* A cordial invitation to attend is extended to the members of the dental profession and to their assistants.

Montreal Dental Assistants Association

The monthly meeting of the Montreal Dental Assistants Association on November 21, 1927, was well attended. Miss Firth presided.

Following the regular meeting, a report of the Detroit meeting of the American Dental Assistants Association was read by Miss Ratner. This report was a great inspiration to the members, and it is hoped it will increase their future activities.

Dr. A. W. McClelland, Professor of Orthodontia in the Dental Faculty of McGill University, spoke on *The Science of Orthodontia.*

What Do We Get From Our Associations, Local and National?*

By Jean Tallaksen, New York, N. Y.

I shall endeavor to bring to your mind some of the advantages that accrue to the dental assistant who is sufficiently far-sighted and interested in the development of her calling to have become a member first of a local society and then of our National Association.

Only a few years ago dental assistants were left to their own resources. No medium was theirs whereby they might grow and broaden

* Read before the American Dental Assistants Association, Philadelphia, Pa., August 20, 1926.

in their calling and in their desire to serve the profession of dentistry and humanity better. One by one societies were organized in widely scattered parts of the country, and in 1923, only three short years ago, the idea of a national association was conceived by one who looked far into the future, and who visualized the advantages that can be derived only by a coordination of effort and the cooperation of all concerned. Then in November, 1924, the American Dental Assistants Association came into existence.

Now, just what do we get from our associations? Ever so many benefits—new ideas, an exchange of ideas, greater education, which enables us to become more efficient and invaluable; the opportunity to better ourselves, the opportunity to prove to the dental profession that we really are in earnest, and that we are working for their interest as well as our own; and, last but not least, pleasant association with our fellow-members.

In our local societies the meetings offer so much to us. Prominent speakers of every profession present their views, giving their valuable time and knowledge for our benefit. Education is the ability to learn from the experience of others. It is with the utmost care and forethought that the essays and lectures prepared for us are delivered. If we were not organized, the securing of such speakers of worth and prominence would not be possible.

But how are we going to get this knowledge and greater viewpoint from our association if we do not support the ideals and purpose for which it stands? The meetings are both interesting and educational, and it is essential that the members attend the meetings so carefully planned for them.

The society of which I have the honor of being a member is and has been doing splendid work along the lines of greater education for the dental assistants by the establishing of special study classes, such as:

Secretarial Duties, where we learn the different methods of keeping books and keeping records, and where we are also taught the proper and improper manner of writing checks, filing checks, sending of courtesy cards, and the use of correct stationery. How the secretary or assistant should receive and dismiss the patient and answer the telephone is of great importance in the daily routine of the dental office.

Porcelain Technic. This class affords a splendid opportunity to those interested in this phase of work. For such instruction the members of the dental profession pay large tuition fees.

X-Ray Assistance. It is very important for every assistant to know how to prepare the proper solutions for developing and fixing and the proper manner of mounting and marking x-rays for filing. This is indeed valuable information that we get from our society.

Sterilization. How many of us know the proper methods? One

cannot be too careful about the sterilization of instruments. We may know a little about it, but there may be newer and better ways than our own, and these newer and better methods are shown us in the class which covers this phase of dental assisting.

First Aid. This is one of the most important classes. We never know when and where our knowledge of first aid can be applied, in the office, on the street, in our homes, on our vacation. How wonderful to be able to save a life by prompt measures or to know that a sufferer has been made happier by our knowledge! At the completion of this course the members are given a certificate attesting that they have completed the standard course of instruction in *First Aid Given to the Injured,* for our courses are given by a physician under the direction of the American Red Cross. This is possible in every community.

Public Speaking and Parliamentary Procedure. This class is one of the outstanding features of the class work of our society. The members taking this course acquire the art of self-expression and poise. It enables them to present original ideas, and the topics and debates assigned by the instructor cover a wide range of interest in the fields of science, medicine, art, literature, inventions, economics, political study, biography, etc. The correct use of parliamentary procedure in the government of societies also is a feature of this course, and no member of a society should neglect to inform herself along this line. How can we intelligently take part in the proceedings of our societies unless we know something of parliamentary procedure?

Chair Assisting. From this course one can add much to one's store of knowledge in this phase of the work, which makes it easier for both the patient and the doctor.

General Laboratory Work. Too much cannot be said of the class in this work. How important it is for the assistant to familiarize herself with all branches of laboratory assistance! The class offers us a course in the making of gold inlays, piecing together of plaster impressions, how to pour plaster and stone models, also the technic of vulcanite denture construction and the art of porcelain staining.

Orthodontic Assistance. Much can be done by the assistant to a specialist in this branch of dentistry to lighten the burdens of the office procedure.

Sharpening of Instruments. It is very important to know how to sharpen instruments properly, thus making it easier for the patient and the operator.

In our Clinic Club we have the medium through which the results attained by the members in these different classes are demonstrated and put to practical tests. This Club meets once a month to formulate plans for demonstrations conducted by the members before dental societies, which take place at various times throughout the year.

All of the foregoing activities are proof positive that the dental assistants' associations of today are doing very valuable and constructive work in the education of the dental assistant.

It should be remembered that the dues paid by the members for one year entitle them to all the privileges and benefits to be derived from attendance at the various classes with very nominal additional expense. Of course, in order that we may derive benefits from the educational opportunities afforded by our societies, it is absolutely essential that we fully apply ourselves to the subject or subjects which we are studying. John Ruskin said: "If you want knowledge, you must toil for it; and if you want pleasure, you must toil for it. Toil is the law."

The National Association embodies all of the local associations, and therefore it is a clearing house or exchange for the methods, ideas, etc., of the various associations which are its components and form its membership. The individual dental assistant therefore is particularly fortunate in being able to have the opportunity of being affiliated with such an association as the American Dental Assistants Association because of the great opportunity afforded her to gain that knowledge which can come only from the bringing together of the methods and ideas of hundreds of her associates from all parts of the country.

Hark ye, therefore, ye dental assistants who are not members of an organization! Only by this can you expect to improve your knowledge in your field, which can be so successfully applied by you if you are in earnest and hope to serve the profession the best you know how.

In conclusion, may I say that the profession we are engaged in is an honorable one, and that it would not have reached its present state of efficiency and progress were it not for the fact that we are banded together in our local societies in a spirit of common accord and cooperation and, in turn, are a part of this grand National Association that stands preeminent in its endeavors for the uplift of the dental assistant.

"A.D.A.A., I behold your fame and recall the time you
were only a name.
I see a prophet consumed with despair and the faith of
a poet to do and dare,
A master builder who caught a beam and fastened its
rays to a beautiful dream.
I see a desert and a distant goal, the inspired patients of
a lofty soul.
I fashion a lullaby and sing of your glory,
I make you the hero of a wonderful story,
I picture the vision your master conceived,
I stand at your cradle, I see, I believe!"

24 State Street.

DIETETICS and HEALTH

Diet

Its Relation to the Development and Diseases of the Teeth

By L. H. Body, Columbus, Ohio

(Editor's Note: This paper is one of the most interesting and helpful that have been submitted in some time. It is interesting not only because of the information it contains, but because the author is a Junior in the Dental Department of Ohio State University. It is a most hopeful sign when a student can prepare so interesting and easy-reading a paper as this.—G. W. C.)

Nature seldom presents her bill on the day you violate her laws. But if you overdraw your account at her bank and give her a mortgage on your body, you may be sure that she will foreclose. She may lend you all you want, but, like Shylock, she will demand the last ounce of flesh.

We often hear it said that the age of miracles is past, yet three times a day, right before our eyes, nature performs even greater miracles than the raising of the dead. A crust of bread is devoured by some hungry waif, cut, crushed, ground, driven by muscles, dissolved by acids and alkalis, absorbed and hurled into the mysterious red river of life. Scores of little factories along this strange stream, waiting for this crust, change it as it passes as if by magic, here into a bone cell, there into gastric juice, there into a nerve cell, yonder into a brain cell. We cannot trace the processes by which this crust arrives at the muscle and acts, arrives at the brain and thinks. We cannot see the mysteries which will give us the Lincoln or the subtle alchemy which transforms this crust into a beautiful poem.

Truly, we are fearfully and wonderfully made. Imagine a cistern which would transform the sewage of a city into pure drinking water in a second, as the venous blood of our bodies is changed by every breath into bright, red, pure blood. Each drop of blood from that magic stream of liquid life was compounded by a Divine Chemist. In it float all our success and destiny. In it are the extensions and limits of our possibilities. In it are health and long life or disease and premature death. In it are our muscles, our brains, the tendencies of a criminal or of a saint. How important, then, that we obey the

laws of health! "If you will not hear reason, she will surely rap your knuckles." How important it is that our blood contain the proper elements necessary for proper development of our health, our faculties!

Present-day science tells us that by eating we can throw the balance of long life against or in our favor. There seems to be no doubt that primitive peoples were vastly superior to us in health and physique, while it has been reserved for civilization to breed diseases whose name is legion and to witness imbecility, decrepitude, and premature death go hand in hand with luxury and plenty. The race has strayed from the path of health and peace and most likely must return over the route whence it came.

Our present-day dietetic crimes are terrible. No one would expect a steam engine to operate if fed on stones, but we expect our bodies, built to run on a simple, balanced diet of rough foods, to function when fed on a conglomeration of pork, doughnuts, soggy potatoes, mince pie, and washed down with hot or ice cold stimulants of coffee and tea.

One man's satire contains a lesson for us:

"Pancakes"

"There is no anesthetic more potent than the pancake. After eating a stack of pancakes, a person is indifferent to almost anything.

"The pancake is not taken in the arm, hypodermically, nor is it inhaled like ether, but is a drug with a shape and a kick all its own. It is in disc form, about the size and thickness of a phonograph record. The patient or pancakee may administer the dose himself, although he should be watched and dragged off before he completely suffocates himself. This process is more pleasant if the pancake is laved in maple or imitation maple molasses. As the patient eats the pancake, he develops a frenzy and will eat himself to death unless a whistle is blown or the supply is arbitrarily shut off. In ten minutes the patient will begin to yawn; in half an hour he will be completely bored with life; in forty minutes he will fall into a stupor and you may sell him life insurance, take his pocketbook, or get his name on the dotted line for a building lot in a swamp. He has no interest in life except his sweet dreams." (Don Herold.)

But where does this lead us as regards our tooth development and disease? Dr. Mayo says: "Oral conditions and disease are but indication of the general physical condition of the body." From this we can draw innumerable conclusions. Experiments will bear out the statement that a human body, properly nourished, will develop sound, normal, and healthy teeth that remain immune to dental decay, which we term *caries,* so long as this proper nourishment is continued and the teeth kept clear of accumulating debris.

Anything affecting the general health affects the weakest link in

the chain. The teeth, because of generations of faulty feeding, offer a handy lodgment for infections. "It has been proved," says the *British Medical Journal,* "that ninety per cent of all dental diseases are preventable."

Stefansson, the explorer, reports finding no word in the Eskimo language for toothache. Today the younger generation of the Eskimos dwelling along the Arctic coast has teeth as defective as those of the children of the States. The reason advanced for this sudden development of caries among them is that they have been brought up on foods such as are available in the grocery stores of the States, viz., flour, sugar, molasses, muscle meats, fish.

A similar condition is found in Europe and America. With a change to a new type of diet such as is now common, especially among savages and American Indians, there has resulted rapid deterioration of the teeth, and caries has become common.[1]

Percy Howe says: "I believe we must look to the causative factors more than we have been accustomed to do. I believe from my work that the causative factor of pyorrhea is an abnormal metabolic condition."

We find Pythagoras, as far back as 550 B. C., testing out principles of living. Plato, the wise old philosopher, in his discourse on diet says that human conduct and moral worth depend upon diet principally and in his plea for adoption of sane living says, "States are as their men are."

In the prevention of dental caries the only effective measure is to adopt a policy that will result in the formation of a dental mechanism possessing its own barriers of defense. This involves the developmental factor. We cannot ourselves profit by this, but we can leave to our children the priceless heritage of freedom from suffering, not only from mouth and teeth discomforts but from those of the body in general.

Dr. Mayo says that the next step in prevention should come from the dental profession. Let us, as dentists, accept the challenge of this man and live with the idea in mind to impress upon our people the fact that correct diet will prevent diseased and undeveloped teeth as a natural result of general well-being, and that improper diet will cause a breaking down of the natural defense found in the all-powerful ally, the blood, with resultant indications of weaknesses that show up in our teeth. As the Irishman said, "The best cure for toothache is not to have it."

Many experiments with diet have been performed, but in this article the author will quote only a few of them, and only the vital points of interest in these.

[1] McCollum: *Newer Knowledge of Nutrition.*

Faulty tooth structure, every stage of what we term *pyorrhea,* irregularity of the teeth and dental caries have been produced in living animals by deficient or unbalanced diet only. Because of metabolism these proofs have been accepted by the professions with reluctance. It has not been difficult to understand that an acid formed by fermentation could dissolve carbonates and phosphates of lime, yet we have not eradicated caries according to the tenets of this theory. Neither has it proved how caries may cease in the presence of fermentive bacteria and a deposit of calcific material laid down. What shall we say of those people who live to a considerable extent on some milk, which contains acid bacteria, and yet have not only no caries but most excellent teeth? Our ideas in dental diseases have been all too limited and the experiments proved, of fundamental significance, should induce a readjustment of the ideas we have held so long.

"I do not find caries as due to excessive sugar or starch feeding, nor in guinea-pigs by feeding bacteria isolated from carious teeth. The caries which we have produced seems to be identical with human caries. It shows bacterial mass and the hyaline cone, which extends to the pulp. Every stage has occurred from superficial caries to pulp exposure. On grinding the carious teeth they have been found to be softer than sound teeth; we have teeth which were once fully formed, in which the dentin has become nothing but a softened mass."[2]

Let us remember the mineral composition of the teeth, so that it may assist in understanding these experiments:

Von Bibra's Analysis

	Man	*Woman*
Calcium phosphate and fluorid...	89.82%	81.63%
Calcium carbonate	4.37	8.88
Magnesium phosphate	1.34	3.55
Other salts	.88	.97
Cartilage	3.39	5.97
Fat	.20	A trace
Total inorganic	96.41	94.03
Total organic	3.59	5.97

In his work in collaboration with Dr. Toverud, Howe reported that carious teeth contained about twice as much magnesium as sound teeth. The teeth of experimental animals contained about six times as much. Toverud later showed that teeth of pregnant rats underwent chemical changes. This adds evidence to the fact that formed teeth can and do change in structure. During the process of calcification, hypoplastic

[2] Howe: *Dental Summary.*

enamel or no enamel formed on deficient diets. Also, marks on teeth showing periods of deficient and normal feeding were present. During irregular calcium metabolism, tartar covers the teeth of monkeys, indicating that it is being excreted into the mouth. When the diet is corrected, this tartar deposition ceases and the teeth gradually become free from it, except in cases of long standing. Decalcification of the mandible and alveolus occurs very commonly in those animals fed on scorbutic deficiencies. The soft tissues of the mouth also degenerate. The first indication is a slight gingival redness or sloughing of gum tissue or ulcer. In some cases the lip is eaten away. When a slower chronic disturbance in calcium metabolism is induced by the diet, tartar forms, both serumal and salivary, pockets are produced about the teeth, and the teeth then drift, forming abnormal occlusion, or what is called *traumatic occlusion.*[3]

In recent science we find added factors, the vitamins, substances existing in foods, which are necessary to proper metabolism, and the absence of which produces deficiency diseases:

Vitamin A, or fat-soluble vitamin, is concerned mainly with growth.
Vitamin B, water-soluble or antineuritic, deficiency of which in the diet produces beri-beri.
Vitamin C, antiscorbutic, deficiency of which causes scurvy.
Vitamin D, a calcifying vitamin, absence of which causes irregular calcium metabolism.

Agnes Grant, of Ohio State University, in her experiment on rats and guinea-pigs, gives us the following important conclusions:

When Vitamin C is deficient in the diet, the dentin is abnormal.
When Vitamin D is deficient in the diet, the enamel is abnormal.
When Vitamins C and D are deficient in the diet, both enamel and dentin are abnormal.
When Vitamins C and D are balanced in the diet, normal dentition results, either with or without an excess of calcium being present.[4]

Sherman finds calcium in American diet to be more often lacking than any other element, and as this is the basic inorganic element of the teeth, an ample amount should assuredly be given in the diet. He states that the average diet is too high in protein. Cows' milk contains about 4% protein. Mothers' milk contains even less, about 2%. Rapid growth occurs on this. The popular estimate of protein requirement is usually 10%. Monkeys do not do well on over 8%.

[3] Howe: *Journal of the American Dental Association,* 1922.
[4] Agnes Grant: *Dental Cosmos,* September, 1926.

Percy Howe says: "Before we examine the effects of Vitamin-C deficiencies upon the teeth of monkeys, let me remind you that all of our efforts to affect these teeth by fermentation in the mouth for long periods of time by the feeding and injection of micro-organisms associated with caries have been unavailing, so long as the diet was normal. If monkeys are fed upon a deficient diet, the caries which cannot be produced upon a normal diet will occur and may be extensive. Do not understand me to say that the diet-deficiency causes the decay. I do not know whether or not it causes it. I only know that, following a deficiency, decay occurs with too much regularity to be a mere coincidence. In the early stages, before caries of the teeth occurs, there may be eye trouble or symptoms of rheumatism, loss of power to control the legs, and other conditions, such as increased susceptibility to infections, which are well known to every worker in experimental laboratories."[5]

Our diets are often too concentrated. Roughage, or the indigestible food residue, is often lacking, and when given to animals in the form of filter paper or pure cellulose, such as cotton, it has a marked action on the animal. Animals fed large amounts of this are cured of diarrhea and constipation. They are active, and their tissues, oral and general, appear to be in excellent condition. It improves the musculature of the digestive tract and keeps clean its walls.[6]

When almost enough of the antiscorbutic factor is fed, but not quite enough, no pathology is to be found except in the teeth. This represents a condition in many individuals of our present time of latent antiscorbutic deficiency, which often exists but has been unrecognized. It has been shown that calcium must be present in the diet; that the amount of calcium present is influenced by the amount of phosphorus present; also, as demonstrated by Mrs. Mellanby, that the calcium requirement lessened as cod liver oil or fat-soluble vitamin was present. Apparently this is the case—less calcium is necessary when the antiscorbutic factor is present.

Mrs. Mellanby experimented on children with bone tuberculosis.[7] Three groups were fed: (1) those fed calcifying vitamin, cod liver oil, with egg yolk and milk; (2) those fed some calcifying vitamin, but less than the first group, and some oatmeal added; (3) those fed no oatmeal, with calcifying influence intermediate between first and second groups.

There was in the teeth of the children of the first group less caries and more hardening of tooth and bone tissue, then in the third group, then in the second group.

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[5] Percy Howe: THE DENTAL DIGEST, July, 1927.
[6] Sherman.
[7] Mellanby: *Dental Record*, 1920.

The ratio of increase of caries in these groups was as follows: Group 1, 1.7%; Group 2, 5.7%; Group 3, 2.4%.

Hardening of tissues: Group 1, 2%; Group 2, .04%; Group 3, 1.1%.

In her experiment on dogs she fed them diets deficient in fat-soluble vitamin and obtained defective and irregular teeth, as well as changes in the mandible. When she fed cod liver oil, she found that thick, normal dentin was formed, while in her animals whose diet lacked oil the dentin was thin and defective.

Following the effects of diet on various animals which are more like the human, such as monkeys, similar dental defects evidenced themselves on different diets. Caries has occurred when animals have been fed on foods deficient in antiscorbutic vitamin and in calcium. Animals on a diet high in protein and low in antiscorbutic substance have had rapidly progressing caries. This has also occurred when the ash of the diet was acid, or when the diet lacked roughage.

I have mentioned quite a number of food deficiencies or irregularities that are common in modern diets. These deficiencies may manifest themselves in calcium metabolism. That the antiscorbutic factor has a striking effect on calcium fixation is readily seen by a microscopic examination of the teeth and bones, and also by the x-ray.

The first clinical sign of deficiency is usually evidenced in the difficulty of using the legs. The joints swell and are apparently painful. If orange juice is given soon, a perfect and prompt recovery follows. If this sort of diet is of long duration, the bones become decalcified, the teeth loosen, and the soft tissues are congested.

So it goes. Workers in this field of research are adamant in their belief that the root of our dental troubles lies in the food we take into our bodies each day—in the general physical condition. When some means can be devised by which our people can be made to realize that proper eating means excellent teeth and can be made to act on that principle, then we shall have gone a long way in the preservation of the human race, freedom from suffering, and the elimination of disease.

What should we eat to have health? Nature used to tell us what we needed to eat. Civilization seems to have destroyed this power in man or to have substituted the desire for more delicate, palate-tempting delicacies in its place. Why is it necessary that we welcome the habit of eating what is best for our health? Are we sick as individuals, as a nation? I have not the figures of other countries in this respect, but the United States Army Examining Board in recruiting for the World War found three out of nine men really fit. Of the other six, two were definitely infirm, three were incapable of more than ordinary exercise and belonged to the class commonly termed *physical wrecks,* and one was a chronic invalid. In view of the fact that we consider

ourselves among the healthiest of the healthy this is a staggering blow to our methods and our ideas. The figures are alarming. Why aren't we all fit? We have what we consider a most excellent medical science, wonderful hospitals and clinics, yet statistics prove that we are sick. Our major diseases are getting fewer, thanks to the cures of medicine, but why the necessity for disease at all? It would seem that we have been overlooking one of the most truthful and reasonable adages—"An ounce of prevention is worth a pound of cure." Let us eat so as to prevent the necessity of using a cure. What shall we eat? McCann says that if he discovered himself to be ill, he would start the day with a diet of orange juice, whole wheat bread, and milk, and continue it for sixty days. The monotony of the diet would automatically prevent overeating, yet at the same time it would furnish every element necessary to normal nutrition. It means sacrifice of favorite dishes for a while, but the benefits derived will make one pause before going back to the old regime.

The ideas of experimenters on what we should eat seem to differ very little. All are similar, although varying in amounts.

Owre says: "I should like to explode forever the theory that meat is essential in a perfect diet. Cheese, eggs, and milk should be used as substitutes."[8] His idea about meat will hit us squarely "between the eyes" as a meat-eating nation, yet who will deny his statements in view of the fact that the Japanese are vegetarians, and where can we find a more vigorous race? Pickerell's compilation shows the amount of caries among vegetarians to be from 2% to 25%, among meat-eating peoples from 10% to 95%.

Owre advocates the following:

1. One quart of milk per day.
2. Plenty of leafy vegetables.
3. Consumption of meat low.
4. Plenty of fruits and two meals a day.

Meat is not readily assimilated. It overworks the kidneys. It is highly putrefactive and, if allowed to remain long in the intestines, will cause auto-intoxication. Diseases which can be transmitted through the use of improperly cooked meat are tuberculosis, glanders, anthrax, dysentery, trichinosis, and tapeworm. If the intestine is not kept clean, pathology will follow surely, for this is the gateway of food into the body. A clean intestine means a clean mouth.

McCollum and Howe are agreed that fruit, leafy vegetables, milk, and low meat consumption are necessary to health. The former calls these foods *protective foods,* so since the great triumvirate, the thyroid,

[8] Owre: *Journal of the American Dental Association,* 1926.

suprarenals, and pituitary glands, constitutes the protective mechanism, both anabolic and immunizing, they must have need of the foods which will supply their particular building substance.

In Plato's *Republic,* Volume II, he sketches a dietary program for the people of his ideal state: "They will feed on barley meal and whole wheat flour, baking and kneading them, making noble cakes and loaves. Of course, they must have a relish, salt olives, and cheese, and they will boil roots and herbs such as country people prepare. For a dessert we shall have figs and peas and beans, and they will roast myrtle berries and acorns at the fire. And with such a diet they may be expected to live in peace and health to a good old age and bequeath a similar life to their children."

This program includes all the essential factors of a model diet, based on present-day research. It contains the vitamins in fruits and vegetables. Undoubtedly a diet of this type would bring better health to us today.

When should we eat? There seems to be differences of opinion on when eating should take place. Some advocate three regular meals, some two, and others advocate eating only when hungry. The two-meal-per-day supporters seem to have the most logical reasons to back them. They say that in eating two meals per day one can get the proper amount of nourishment necessary for sustenance, yet by the natural limitations of the stomach prevent the overeating which seems to be so prevalent. They maintain that if the amount of food necessary to support metabolism is taken in three meals, there is not sufficient volume and roughage in each to exercise the alimentary tract properly, and, as a result, stagnation occurs.

Fletcherism teaches us to masticate thoroughly and insalivate every particle of food taken in, including liquid, in order to get the most enjoyment and nourishment out of it.

The writer believes that, in accepting the diet offered by the general consensus of the beliefs of the authorities mentioned, we shall have the most necessary and protective foods. Of them let us eat freely, then allow our natural appetite to dictate the rest of the meal. Such a plan gives us the desired prevention and protection we need so badly, yet leaves the epicure with a possibility of appeasing his psychological wants. By following such a plan one cannot err materially.

There are many years ahead of those who will take them, but there are not many ahead of those who are over weight. Masses of fat, which have to be kept alive at the expense of the heart, are not regarded by life insurance companies as favorable factors. Fat cannot be removed overnight, but over a period of months, if intelligently handled. Whole wheat bread and milk will work wonders and add years to the threatened life.

Cyrus, conqueror of Babylonia, raised Persia from an obscure, rude colony to one of the most powerful and splendid empires the world ever saw; he performed more extraordinary marches, fought more battles, won more victories, and exhibited more personal prowess and bodily power and endurance than almost any other general that ever lived. He subsisted from childhood on the simplest and plainest diet of vegetables and water.

From what has been said it would seem that the prevention of dental diseases depends very largely on the character of the diet and on what we know of calcification. This applies to the diet of the mother prior to the birth of the child and should be continued during the period of lactation, as well as in later periods. I believe that mouth conditions must be considered from the standpoint of the body at large, for, after all, dental and oral conditions are only symptoms of irregularity elsewhere in the mechanism.

We must face the fact that we have been on the wrong track. We must no longer regard ourselves primarily as cleaners of teeth and skilled workers in the mechanics of restoration. Patients must be warned that the mouth is by far the greatest portal of entrance of germ life into the body and the most infected part of the alimentary canal. They must be taught the absolute necessity of combating disease by taking nothing into the system that will aid in tearing down the natural barriers endowed upon us by our closest friend, Mother Nature. We must learn to heed the wee small voice.

Nature gives to him who hath. She shows him the contents of her vast storehouse and bids him take all he wants, and welcome; but she will not let him keep for years what he does not use. She discards the useless. Put your arm in a sling and allow it to remain unused, and nature will remove the flesh almost to the bone, but in exact proportion to your efforts to use it again she will gradually restore what she took away. Allow the mind to fall into disuse and nature will remove it even to imbecility. Do little or no chewing and teeth will become useless in exact proportion. Vigorous chewing gives the healthy ones that we all seek to have. We cannot have health except by paying the price.

141 13th Avenue.

Books Received

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Gangrene of the Dental Pulp And Its Treatment As Based On A Biochemical Investigation, by Gustav Hedstrom, translated by Carl Westman.

This work, published in 1926 in celebration of the twenty-fifth anniversary of the Odontological Society in Stockholm, is a most complete and interesting book.

The histology and chemistry of the pulp are first taken up, together with the physiological and pathological disintegration of proteins.

With this as a foundation the author proceeds to give his technic for the treatment and filling of the root canal. On the whole, he follows very much the method used in this country.

In the treatment of putrescent canals he uses an iodin paste and a modification of Dakin's solution. The instrumentation offers nothing new. In the sealing in of dressings he again sounds the warning against the use of gutta-percha, since this acts as a plunger and is liable to force the medicament beyond the desired point.

When it comes to filling the canal, the author uses a substance that he calls *asphalt*—a benzol solution of the natural product. This, he claims, is insoluble in water, dilute acids and caustic alkalis; bacteria cannot grow in it; it is non-irritating and adheres to the walls of the canals.

For the man who wishes to get away from the empirical method of treatment and obtain some idea of what he is really up against when he treats a root canal, this book will be found very instructive.

174 pp., with illustrations and table of reference. Stockholm, Sweden: Isaac Marcus's Boktryckeri-Aktiebolag, 1927.—A. M. J.

Index of the Periodical Dental Literature, for the five years, 1891-1895, compiled by Arthur D. Black, A.M., M.D., D.D.S., Sc.D.

This is the sixth volume of the *Index.* Sixty-seven years of the literature of the profession have been covered, leaving only twenty years

to be indexed. Thus we see that the monumental task is nearing completion, and the author and his coworkers are to be congratulated on their success.

To any one engaged in the writing of articles and the preparation of papers these volumes will be of inestimable value, not only as a means of reference but also in finding out just what has been done along the same lines.

594 pp. Buffalo, N. Y.: Dental Index Bureau, 1927.—A. M. J.

JANUARY 1, 1928

Another year of hopes and fears,
Another year of smiles and tears,
Another year from all our years,
  Last night stole soft away.
Whate'er of good, whate'er of ill
It brought, or ache, or peace, or thrill,
Means little now save as it will
  Prove guidance for today.

Hail then with joy the New Year's birth—
A Babe of promise born to earth—
A year worth what we make it worth,
  A joy or pain-to-be.
Proud sire of a new-born year,
Time swings his service portals clear,
Beyond which love and hope appear,
  And opportunity!

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

Don't worry about tomorrow—it will soon be yesterday.

The Kingdom of Heaven is within you—except in green apple time.

(Father—coming unexpectedly to his son's frat house)—Does Mr. Brown live here?

(Senior)—Yes, bring him in.

"That, sir, is a falsehood!" severely said the schoolma'am. "Do you know what will happen to you if you tell lies?"

"Yes'm," nonchalantly replied Skinny Simpson. "I'll go to hell and burn."

"Worse than that! You will be expelled from school!"

An optimist is a person who will order a plate of raw oysters when he hasn't a cent in his pocket, expecting to pay for the meal with the pearl that he is going to find.

(He)—They say she has decided to marry a struggling young author.

(She)—Well, if she has decided, he may as well stop struggling.

(Mike)—'Tis a fine lad ye have here. A magnificent head and noble features. Could ye lend me a couple of dollars?

(Pat)—I could not. 'Tis me wife's child by her first husband.

(Teacher)—Willie, what part of speech is nose?

(Willie)—No part; you speak wid your mouth.

"Gee, mom, I wisht I was a goldfish. Then I wouldn't never haff to take a bath."

The secret of success in writing is in hitting the right keys on the typewriter.

In Chicago

(Belle)—I am going down town to buy a sport dress.

(Mother)—But, my dear, you won't need one this time of year.

(Belle)—Yes, I will; I'm going to shoot my husband.

(Jeffrey)—So your son has been injured and is coming home from college?

(Briggs)—Yes, he sprained his ukulele finger.

"What makes your dog howl?"

"He's just lazy."

"But laziness won't make a dog howl."

"Yes, but that dog's sittin' on a sandburr."

(Gallant Guest—to hostess as they walk to the table)—And may I sit on your right hand

(Hostess)—No, I'll have to eat with that. You'd better take a chair.

The only thing a nickel is good for nowadays is to get the wrong number on the telephone.

Yankee Doodle Calvin

Uncle Calvin came to town
  Aridin' on a pony;
He said: "I do not choose to run—
  And that is no baloney!"

Heredity

"Children think themselves wiser than their parents."

"Yes, it is an evidence of heredity. Parents did the same thing when they were children."

(Little Betty)—Mamma, are you going to get that fur coat from daddy for your birthday?

(Mother)—No, darling.

(Betty)—Have you tried throwing yourself on the floor and kicking and screaming like I do?

Did you hear about the Scotchman who fried his bacon in Lux to keep it from shrinking?

A Bachelor Makes a Pie

Dr. Harvey W. Wiley, the food expert, ended a eulogy of rhubarb with an anecdote.

"There was a bachelor mason in my native Kent," he said, "who used to cook his own food, and one day he came to work with a pie over two feet long fastened to the top of his lunch basket.

"'What have you got there, Joe?' the boss asked him.

"'A pie. What do you think?' said Joe.

"'But look at the length of it,' said the boss.

"'Well,' Joe growled, 'the rhubarb was that long.'"

FUTURE EVENTS

THE PROSTHODONTIA SECTION OF THE EASTERN DENTAL SOCIETY will hold the third of a series of practical demonstrations, which have been acclaimed by those attending the previous ones, on Monday, January 9, 1928, at 8:30 P. M., at the Allied Dental Council Headquarters, 425 Lafayette Street, New York, N. Y.

A most important phase of dental prosthesis will be gone into in such a simplified manner that even one unfamiliar with the topic will readily grasp the information and can apply it in his daily endeavors toward the construction of *Better-Fitting and Better-Looking Dentures.*

Dr. J. S. Landa will take up the question of *Centric Relation and Height of Occlusion or the Degree of the Opening of the Jaws.*

The Committee urges an early attendance, since many valuable pointers will be given in the sequence followed in the technic.

LOUIS I. ABELSON, *Chairman,*
S. CHARLES GARDNER, *Secretary.*

The next meeting of the DELAWARE BOARD OF DENTAL EXAMINERS will be held in the Municipal Building, Tenth and King Streets, Wilmington, January 18-19, 1928, 9 a. m. to 5 p. m.

For further information, address

W. S. P. COMBS, *Secretary,*
Middletown, Delaware.

THE CHICAGO DENTAL SOCIETY will hold its Annual Midwinter Meeting and Clinic at the Drake Hotel, Chicago, January 24-26, 1928. Dr. Arthur D. Black is chairman of the Program Committee.

All members of the American Dental Association are cordially invited to attend this meeting.

THE CHICAGO ALUMNI CHAPTER OF PSI OMEGA FRATERNITY will hold its annual meeting during the Chicago Dental Society Mid-Winter Clinic at the Drake Hotel, January 24-26, 1928. All Psi Omegas attending the meeting will please register in Room 156. Plan to attend the dinner on Friday evening, January 26.

S. A. HUTT, *Secy.-Treas.,*
3166 Lincoln Avenue, Chicago, Ill.

THE WESTCHESTER DENTAL SOCIETY will hold its monthly scientific session on January 31, 1928, at 8:30 P. M., at the Yonkers Chamber of Commerce, 35 South Broadway, Yonkers, N. Y.

The essayist will be Dr. Paul Shapiro of New York. His subject will be *Full*

Denture Construction, and he will discuss the importance of examination of mouth, the relative merits of impression technics employed today, and ways and means of establishing correct centric occlusion. The meeting is open to all who care to come.

The third annual BALTIMORE MID-WINTER CLINIC will be held at the Belvedere Hotel, February 3-4, 1928.

Dr. Herman E. S. Chayes of New York will clinic on *Movable-Removable Bridgework, Its Principles and Its Technique.* Dr. John J. Posner, also of New York, will clinic on *Local Anesthesia Simplified*, and Dr. Alfred LeGro of Detroit on the *Porcelain Jacket Crown.* A fourth clinician of national prominence is to be selected.

The number subscribing to the Clinic is limited to two hundred. Any member of the American Dental Association is welcome to subscribe, and the applications are accepted in the order in which they are received until the list is closed.

For information, address Dr. George B. Jersin, Chairman of the Membership Committee, Medical Arts Building, Baltimore, Md.

THE CONNECTICUT STATE DENTAL ASSOCIATION will hold its sixty-fourth annual meeting in New Haven, Conn., April 11-13, 1928.

THE NEW JERSEY STATE DENTAL SOCIETY will hold its fifty-eighth annual meeting in the Berkeley-Carteret Hotel, Asbury Park, N. J., April 18-21, 1928.

Essays: April 18-19. Clinics: April 18-20.

THE SOUTHERN SOCIETY OF ORTHODONTISTS will hold its annual meeting at The Southern Hotel, Baltimore, Md., April 27-28, 1928. A cordial invitation is extended to all ethical members of the dental and allied professions.

OREN A. OLIVER, *Secretary-Treasurer,*
1101 Medical Arts Bldg., Nashville, Tenn.

THE AMERICAN SOCIETY OF ORTHODONTISTS will hold its next annual meeting at Hotel Statler, Buffalo, N. Y., April 30-May 3, 1928. Members in good standing in the American Dental Association are cordially invited to attend.

WALTER H. ELLIS, President,
CHARLES R. BAKER, Sec'y-Treas.,
708 Church Street, Evanston, Ill.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its 60th annual meeting at Syracuse, N. Y., May 16-18, 1928.

A cordial invitation to attend is extended to all ethical dentists who are members of State Societies. The Society also bids all ethical Canadian dentists a very cordial welcome.

For information with reference to literary exercises, clinics, etc., apply to Dr. A. P. Burkhart, Secretary, 57 East Genesee Street, Auburn, N. Y.

THE VERMONT STATE DENTAL SOCIETY will hold its 1928 meeting at Burlington, Vt., May 23-25, 1928.

THE NORTHEASTERN MASSACHUSETTS DENTAL SOCIETY will hold its fourteenth annual convention on June 25-27, 1928, at the New Ocean House, Swampscott, Mass. All ethical dentists are cordially invited to attend. Best of clinicians and exhibits, reduced hotel rates, golfing and surf bathing. For particulars, address

HENRY I. YALE, *Secretary*,
Peabody, Mass.

THE AMERICAN DENTAL ASSOCIATION will hold its Seventieth Annual Session in Minneapolis, Minnesota, August 20-24, 1928.